CTI Server Message Reference Guide (Protocol Version 16) for Cisco Unified Contact Center Enterprise

Release 9.0(1)

June 2012

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

CTI Server Message Reference Guide (Protocol Version 15) for Cisco Unified Contact Center Enterprise for Cisco Unified Contact Center Enterprise.Release 9.01)

CONTENTS

About This Guide

Purpose

This manual describes the Customer Telephony Integration (CTI) Server message interface between Unified Contact Center Enterprise (Unified CCE) and application programs.

Audience

This manual is for system integrators and programmers who want to integrate C++ CTI client applications with Unified CCE.

Organization

The manual is divided into the following chapters.

Chapter	Description
Chapter 1, "CTI Server Overview"	Provides an overview of CTI Server.
Chapter 2, "CTI Client Application Guidelines"	Lists some guidelines that you need to be consider when you write applications that will interface with CTI message data.
Chapter 3, "Messaging Conventions"	Lists the CTI Server message set, describes the components of CTI Server messages, and provides the format for CTI Server failure indication messages.
Chapter 4, "Session Management"	Explains how CTI Server initiates and maintains TCP connections and CTI Server sessions.
Chapter 5, "Application Level Interfaces"	Describes the CTI Server Application Level Interface Services and their associated messages.
Chapter 6, "Constants and Status Codes"	Lists the possible values for various status codes and fields that can appear in CTI Server messages.
Appendix A, "Changes and Additions"	Details the changes and additions made to various protocol versions of the CTI Server.

Related Documentation

Documentation for Cisco Unified CCE, as well as related documentation, is accessible from Cisco.com at
http://www.cisco.com/cisco/web/psa/default.html?mode=prod.

- Related documentation includes the documentation sets for Cisco CTI Object Server (CTI OS), Cisco Agent Desktop (CAD), Cisco Agent Desktop - Browser Edition (CAD-BE), Cisco Unified Contact Center Management Portal, Cisco Unified Customer Voice Portal (Unified CVP), Cisco Unified IP IVR, Cisco Support Tools, and Cisco Remote Monitoring Suite (RMS).
- For documentation for these Cisco Unified Contact Center Products, go to
http://www.cisco.com/cisco/web/psa/default.html?mode=prod
click on **Voice and Unified Communications**, then click on **Cisco Unified Contact Center Products** or **Cisco Unified Voice Self-Service Products**, then click on the product/option you are interested in.
- For troubleshooting tips for these Cisco Unified Contact Center Products, go to http://docwiki.cisco.com/wiki/category:Troubleshooting, then click the product/option you are interested in.
- Also related is the documentation for Cisco Unified Communications Manager, which can also be accessed from http://www.cisco.com/cisco/web/psa/default.html?mode=prod
- Technical Support documentation and tools can be accessed from
http://www.cisco.com/en/US/support/index.html
- The Product Alert tool can be accessed through (login required)
http://www.cisco.com/cgi-bin/Support/FieldNoticeTool/field-notice

Conventions

This manual uses the following conventions.

Format	Example
Boldface type is used for user entries, keys, buttons, and folder and submenu names.	Choose **Edit > Find** from the Configure menu bar.
Italic type indicates one of the following: • A newly introduced term • For emphasis • A generic syntax item that you must replace with a specific value • A title of a publication	• A *skill group* is a collection of agents who share similar skills. • *Do not* use the numerical naming convention that is used in the predefined templates (for example, **persvc01**). • IF *(condition, true-value, false-value)* • For more information, see the *Database Schema Guide for Cisco Unified Contact Center Enterprise.*
An arrow (>) indicates an item from a pull-down menu.	The Save command from the File menu is referenced as **File > Save**.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.

Documentation Feedback

You can provide comments about this document by sending email to the following address:

mailto:ccbu_docfeedback@cisco.com

We appreciate your comments.

CHAPTER 1

CTI Server Overview

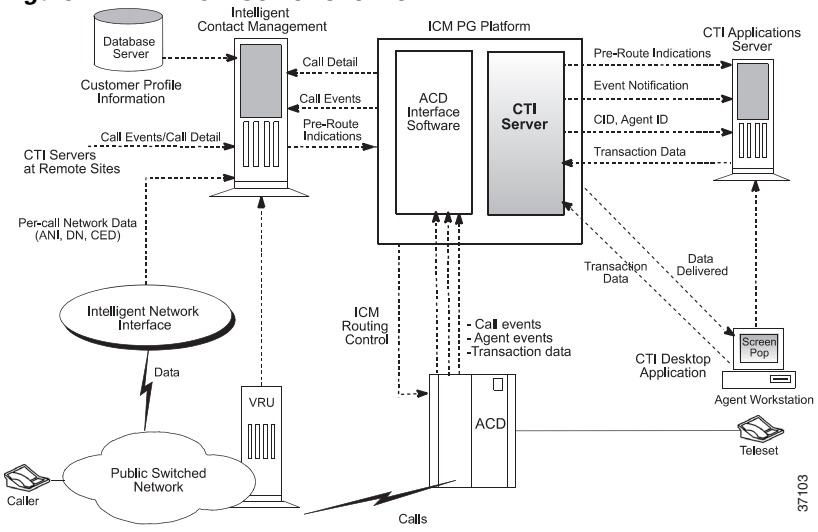
This chapter provides an overview of the CTI Server. It discusses the following aspects of CTI Server:

- How CTI Server works
- Possible CTI Server configurations
- The CTI Server message set

How CTI Server Works

The CTI Server provides an interface between Unified CCE and client CTI applications. CTI Server runs at the call center site on either a Unified CCE Peripheral Gateway (PG) with ACD interface software or on a dedicated CTI Gateway platform. Figure 1-1 shows a sample CTI system in which the CTI Server runs on a PG platform along with the ACD interface software. CTI Servers may be running at one or several call centers in the enterprise.

Figure 1-1 CTI Server Overview



CTI Server forwards pre-route indications to CTI application servers. *Pre-route indications* identify the caller and provide associated call attributes to applications while the call is still in the public or private network (that is, before the call is connected to an agent or Voice Response Unit (VRU).

In a direct desktop application environment, call event information is delivered to the targeted desktop when the call is delivered. CTI Server reports call events and agent work state changes to the application as they occur through each stage of the call flow—from the moment a call arrives at an answering resource (Automatic Call Distributor (ACD), Private Branch Exchange (PBX), VRU), until the caller hangs up.

Unified CCE Call Processing

The following brief review of several different Unified CCE call processing flows may be helpful when considering the CTI services and data provided by this interface. In the following discussions:

- "**Agent**" represents either a human representative or a VRU port.
- "**ACD**" represents a peripheral that is directly monitored by Unified CCE. It may be an actual ACD or a VRU.
- "**Call context**" refers to the user data associated with a specific call collected by Unified CCE. Call context includes Dialed Number, Calling Line ID or ANI, Caller Entered Digits, and an array of Call Variables.

Pre-Routed ("Normal") Call

Step 1 A customer dials an Enterprise "800" number.

Step 2 The caller responds to in-network prompting (if any).

Step 3 The network forwards a route request to Unified CCE (including any caller entered digits collected by the network).

Step 4 Unified CCE, through the use of a routing script, chooses a destination to handle the call. The routing script almost certainly makes use of any caller entered digits.

Step 5 A route response is returned to the network.

Step 6 The call arrives at the chosen ACD and is monitored by the Peripheral Gateway (PG).

Step 7 The call may pass through several states (queued, alerting, etc.) before finally being connected to an agent.

Step 8 The agent may either handle the call directly or transfer the call to another agent.

Step 9 Upon completion of the call, a Termination Call Detail record is created and sent to the Central Controller (CC) database.

Translation Route Call

Step 1 A customer dials an Enterprise "800" number.

Step 2 The caller responds to in-network prompting (if any).

Step 3 The network forwards a route request to Unified CCE (including any caller entered digits collected by the network).

Step 4 Unified CCE, through the use of a routing script, chooses two destinations for the call: an intermediate target and an ultimate target. The intermediate target is chosen from a special "pool" of targets reserved for just this purpose. No other calls are expected to arrive at the intermediate target.

Step 5 A route response is returned to the network to send the call to the intermediate target. At the same time, the ultimate target data is sent to the PG monitoring the ACD where the call is expected to arrive. Caller entered digits collected in the network and any other call data set by the routing script is also sent to the PG in the message.

Step 6 The call arrives at the chosen ACD and is monitored by the Peripheral Gateway (PG).

Step 7 The ACD, recognizing the "special" nature of the call, performs a Route Request to collect the call's ultimate target.

Step 8 The ultimate target and other "call context" data determined by Unified CCE in step 5 is returned by the PG in a Route Response

Step 9 The ACD routes the call to the ultimate target. As in the "normal" call case, the PG is informed of the call's state changes as they occur. Eventually the call is connected to an agent.

Step 10 The agent may either handle the call directly or transfer the call to another agent.

Step 11 Upon completion of the call, a Termination Call Detail record is created and sent to the CC database.

Post Route Call

Step 1 An ACD sends a Route Request to Unified CCE in order to determine the destination for a call it wishes to redirect. The Route Request may supply call data such as caller entered digits and any other call context data that peripheral type supports.

Step 2 Unified CCE, through the use of a routing script, chooses a destination to handle the call. The routing script almost certainly makes use of any caller entered digits.

Step 3 A route response is returned to the ACD, along with call context data (that may have been updated by the routing script).

Step 4 The ACD routes the call to the ultimate target. As in the "normal" call case, the PG is informed of the call's state changes as they occur. Eventually the call is connected to an agent.

Step 5 The agent may either handle the call directly or transfer the call to another agent.

Step 6 Upon completion of the call, a Termination Call Detail record is created and sent to the Central Controller database.

Transfer Call

Step 1 In the case of a "local" transfer, the agent handling a call directs the ACD to transfer the call to another destination on the same ACD.

Step 2 The peripheral gateway (PG) is informed of the various events associated with the call's transfer.

Step 3 Call transfers are handled differently by different types of ACDs, but in general a new logical call is created for the resulting call, and a Termination Call Detail record is created for the original call.

Step 4 The new call is connected to an agent and is subsequently handled or transferred (again) like any other call.

In the case of a "remote" transfer, the call leaves the realm of the monitoring PG and the original call is terminated in the usual way. If the "remote" transfer is to another ACD that is monitored by Unified CCE, the new call is monitored on that ACD's PG when the call arrives. This new call has none of the call context of the original call.

Depending upon the particular ACD's capabilities and tie-line configuration, some ACDs may be set up to effect call transfers using the post route and translation route features previously described. In this case, the call context is preserved by being sent through Unified CCE via the route request and translation route mechanisms to the remote PG, and is thus available to the CTI Client, if any, associated with the destination device.

Conference Call

Like call transfers, call conferences are handled differently by different types of ACDs and may involve the creation of several calls that are all linked together.

CTI Server Configurations

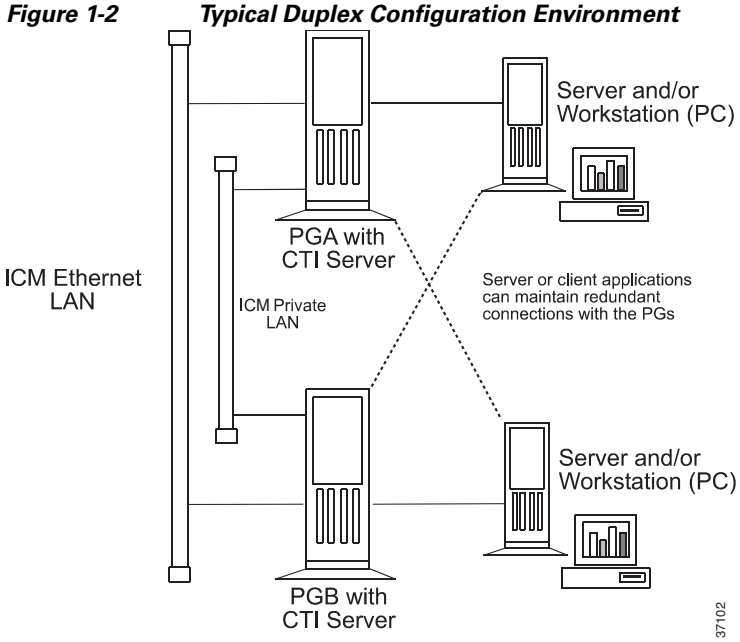
The CTI Interface uses TCP/IP Ethernet for network connectivity to the CTI Server. You can use multi-protocol IP routers to provide connectivity to CTI clients on other types of LANs. You can use the Ethernet interface used for CTI client communication with the CTI Server for other purposes, such as the PG's public network interface; a dedicated interface is not required.

Note You must **not** use the PG private network for CTI communication.

Simplex/Duplex Configuration

In **simplex** configurations, there is one CTI Server on the local network with the CTI clients. In **duplex** configurations, two CTI Servers are present. There may be other equipment (for example, ACDs) on the network as well. Figure 1-2 shows a typical duplex configuration.

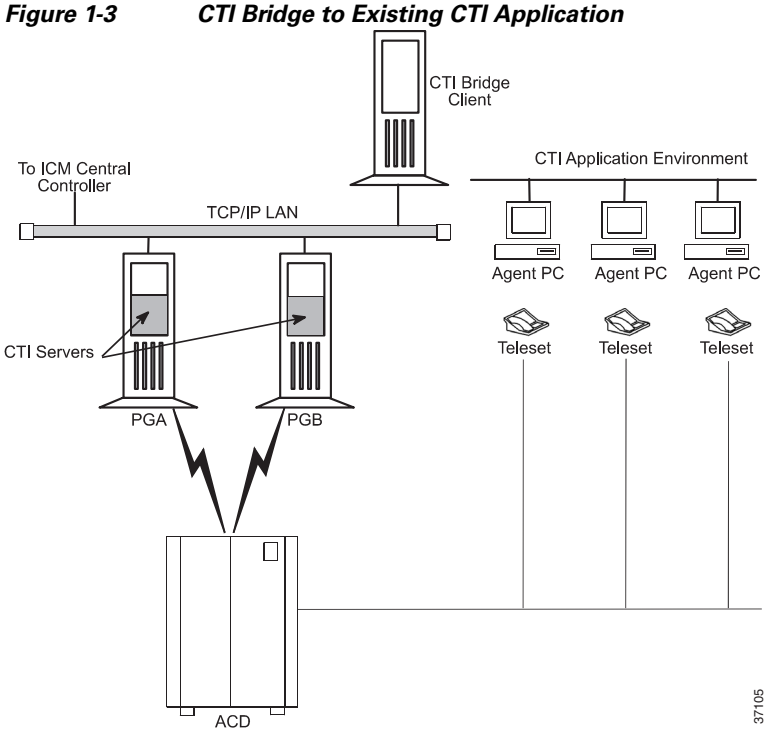
Figure 1-2 Typical Duplex Configuration Environment



CTI Bridge Configuration

In CTI Bridge configurations, a CTI Bridge Client provides the connection between an existing CTI Application and Unified CCE, as shown in Figure 1-3.

Figure 1-3 CTI Bridge to Existing CTI Application



CTI Bridge applications are interested in all call and agent state events that are occurring on the ACD, unlike agent workstation applications that are interested only in the events associated with a particular teleset. The CTI Bridge application is a specially written program that converts or adapts some or all of the CTI messages into another format; a single CTI Bridge application provides such translation services for multiple agent desktops. The CTI Bridge application can be designed to interface with CTI Servers or similar applications on systems that are already in use in the call center.

Some examples of CTI Bridge applications include:

- Message converter applications. For example, an application may convert the CTI message set to the message set of a foreign telephony server.
- Server-to-server communication applications. For example, an application may enable the CTI Server to speak directly to a help desk application's middle tier server.

CTI Server Message Set

The CTI Server makes call data available to applications in real-time. To accomplish this task, the CTI Server process responds to requests from clients and originates unsolicited messages. All messages share a common message header and use the same set of data types.

Table 1-1 groups the messages into broad categories based on the nature of the message data.

Table 1-1 CTI Server Message Categories

Category	Description
Session Management	Messages related to the establishment and maintenance of a client connection to the CTI Server.

Table 1-1 CTI Server Message Categories

Miscellaneous	Messages related to system-level events on the PG (for example, peripheral off-line, loss of PG-to-Central Controller communications).
Call Events	Messages related to call state changes.
Agent Events	Messages related to agent state changes.
Call Data Update	Messages related to CTI client modification of call data.
Client Control	Messages related to the direct control of agent state (for example, login, logout) as well as control of inbound and outbound calls.

For a description of the session management messages, see Chapter 4, "Session Management." For information on messages in the other categories, see Chapter 5, "Application Level Interfaces."

CHAPTER 2

CTI Client Application Guidelines

This chapter discusses some considerations to keep in mind when you are writing CTI client applications that will make use of CTI Server data. Topics discussed in this chapter include:

- Invoke IDs
- Heartbeat messages
- ACD-specific considerations
- Message masks
- Message order
- Symbolic constants definition file
- TCP/IP connections
- Data element alignment

InvokeIDs

The CTI protocol provides an integer *InvokeID* field in each request message. This field is always returned in the corresponding response message. You can set the Invoke ID to a unique value for each request you sent to the server. This allows you to have multiple requests outstanding and to correctly determine which request's response has been received. For example, you can implement a simple counter that is incremented with each request.

Heartbeat Messages

The Heartbeat Interval designates the time in seconds between sending heartbeat messages to the CTI Server. A Heartbeat Interval of -1 disables heartbeats. The default and recommended setting for application developers is -1. *You* must determine the appropriate heartbeat interval for a production environment -- it depends on the application and the environment. It should represent a reasonable balance between the speed of failure detection and the network bandwidth consumed by heartbeat messages and their corresponding confirmations. In cases where there are very few CTI clients, such as a CTI Bridge, the minimum heartbeat interval of 5 seconds should suffice. Workstation (desktop) clients should use a much larger heartbeat interval (at least 90 seconds is recommended), since these clients typically number into the hundreds and possibly thousands. However, if the TCP/IP time-out period is adequate, or if there is nothing the application can do even if it is aware that something is wrong, it may be appropriate to disable heartbeats even in a production environment.

Generic vs. ACD-Specific Applications

Although CTI Server provides a great deal of call event detail, be aware that the events reported and details provided with each call event vary depending upon the type of ACD involved and possibly the specific software version or other options configured. To remain completely generic and independent of the ACD type, the CTI client should only utilize the BEGIN_CALL_EVENT, END_CALL_EVENT, and CALL_DATA_UPDATE_EVENT messages.

In an object oriented model, you could use the BEGIN_CALL_EVENT message to construct an object that represents this specific call and initializes its contents. Any subsequent call event messages operate on the object and possibly change its state. Finally, you can use the END_CALL_EVENT to trigger any needed cleanup operations and destruction of the call object.

When you need other call event messages to satisfy the application's requirements, try to use as little event data as possible other than the event type (message type). Your application will have fewer ACD specific dependencies.

For a list of the basic differences between ACD types that are potentially visible to a CTI client, see the *CTI OS Developer's Guide for Cisco Unified Contact Center Enterprise*.

Message Masks

CTI Server can provide much more real-time data than the typical CTI client needs. The CTI Server provides message masks to suppress the transmission of unneeded data and avoid wasting network bandwidth. You should carefully consider the network impact of the expected number of simultaneously connected CTI clients before deploying a CTI client application that unmasks a large number of messages.

Message Order

When an event occurs that would conceptually result in two or more event messages being generated at the same time, the CTI client must be prepared to handle the messages arriving in any order. For example, an agent answering an inbound call might generate both a CALL_ESTABLISHED_EVENT and an AGENT_STATE_EVENT message. These may be received by a CTI client in either order, and other event messages may be sent to the client in between. Also, since ACD event data is often obtained from multiple sources, there can be a noticeable delay between event reports that logically occur at the same time.

Definitions of Symbolic Constants

The symbolic constants shown in tables in this document are available in a C include file, CTILink.h, that is included with every CTI Gateway installation in the \icr\include directory.

Side A/B Selection and TCP/IP Connections

The following algorithm is suggested for establishing TCP/IP connections with the CTI Server. This algorithm attempts to strike a balance between rapid reconnection following loss of connection and network saturation (due to hundreds of clients attempting to connect simultaneously). The algorithm is terminated as soon as a successful TCP/IP connection is achieved:

Step 1 Attempt to connect to the same side as the last successful connection.

Step 2 Attempt to connect to the opposite side.

Step 3 Generate a random integer number N between 0 and the expected number of CTI clients divided by 10.

Step 4 Wait for N seconds. This step helps avoid “rush hour” traffic when all clients at a site are reconnecting simultaneously.

Step 5 Attempt to connect to the same side as the last successful connection.

Step 6 Attempt to connect to the opposite side.

Step 7 Wait for 15 seconds.

Step 8 Attempt to connect to the same side as the last successful connection.

Step 9 Attempt to connect to the opposite side.

Step 10 Wait for 30 seconds.

Step 11 Attempt to connect to the same side as the last successful connection.

Step 12 Attempt to connect to the opposite side.

Step 13 Wait for 60 seconds.

Step 14 Attempt to connect to the same side as the last successful connection.

Step 15 Attempt to connect to the opposite side.

Step 16 Wait for 120 seconds.

Step 17 Repeat steps 14 – 16 until a connection is achieved.

Alignment of Data Elements

The messages described in this document are sent as a stream of bytes. If the CTI client application uses data structures to represent the messages, be sure that the data structures do not have padding inserted to align elements on particular boundaries, such as aligning 32-bit integers so that they are located on a 4-byte boundary.

Incompatible Changes to Reported Call ConnectionIDs

In the early releases of CTI Server, there was a defect in the connectionID logic that caused a call's first connectionID to be used as the connectionID in all subsequent call event messages, even when the event referred to a different call connection. This sometimes presented CTI clients with ambiguous call event messages, particularly when the call involved more than two parties.

This defect no longer exists in CTI Server Protocol Version 5 and subsequent releases. However, existing CTI client applications may be inadvertently dependent upon the old (incorrect) behavior and may no longer function correctly even though they continue to use the older CTI Server protocol revision. You should retest all CTI Server applications with the new release in a controlled environment prior to upgrading production systems with the Unified CCE, to avoid any impact to normal business operations.

CTI applications that use only the BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, and END_CALL_EVENT call event messages may not require any changes. CTI applications that use the ConnectionID field in any other call event messages will almost certainly be affected.

For further call ConnectionID details, see "Call Identification" in Chapter 3.

CTI Server Operations During Unified CCE Failures

The Unified CCE is fault tolerant and recovers from failures quickly, but certain types of failures are not transparent and require consideration during application design:

- A failure of the active CTI Server causes all client connections to be closed. Clients may reconnect immediately (to the other side's CTI Server in duplex configurations, or to the restarted CTI Server in simplex configurations), but clients will not receive messages for events that occurred while the client session was not open. ClientEvent clients will receive a BEGIN_CALL_EVENT for all calls that are already in progress when their session is opened.
- A failure of the data link or related software between the ACD and the Unified CCE will cause applications not to receive event messages for the duration of the outage. This type of failure is reported to all CTI clients via a SYSTEM_EVENT indicating that the peripheral (ACD) is offline. In addition, the Unified CCE may take additional action depending upon the type of failure and the ACD involved. In many cases, an END_CALL_EVENT will be sent immediately for every call that was in progress, even though the actual voice calls may still be in progress. When normal operation is restored, calls that are in progress may or may not have their call events reported, depending upon the particular type of ACD. If so, a new BEGIN_CALL_EVENT is sent for each call that will have event reporting resumed. In other cases, the calls will be allowed to linger for a short time after the failure without sending an END_CALL_EVENT. If the data link is restored within the short time interval, normal call event reporting continues (although events that occurred during the outage are not reported and the call may now be in a different state). If normal operation is not restored within the allotted time an END_CALL_EVENT is then sent for each call.
- A failure of the datalink between the Unified CCE Peripheral Gateway and the Central Controller does not prevent event messages, however, the failure does prevent use of the Unified CCE post-routing and translation-routing features.

CHAPTER 3

Messaging Conventions

Communication between the CTI client and the CTI Server is accomplished by the exchange of messages. Cisco's CTI Server message set is modeled after the Computer-Supported Telecommunications Applications (CSTA) messaging conventions defined by the European Computer Manufacturers Association. CTI Server messages, in general, follow CSTA naming conventions and the request/confirmation and unsolicited event paradigms. However, CTI Server messages use a simpler set of data types than those defined by CSTA.

In the CSTA model, one party acts as a server and the other as a client. In the Cisco interface, as the names suggest, the CTI client takes the client role and issues requests to the Unified CCE. The Unified CCE CTI Server takes the server role, responding to requests from the CTI clients and originating unsolicited events.

This chapter provides the following information about CTI Server messages:

- A list of the complete CTI Server message set
- A description of the following CTI Server message components:
  - Data Types
  - Floating Fields
  - Invoke IDs
  - Call Event Data
- The format for CTI Server failure indication messages

Message Types

Table 3-1 defines the complete CTI server message set. The messages are described in greater detail in the remainder of this document. The length of the largest possible message (including the message header) defined by this protocol is 4329 bytes.

Table 3-1 Message Set

Number	Message Type	Purpose
1	FAILURE_CONF	Negative confirmation; may be sent in response to any request.
2	FAILURE_EVENT	Unsolicited notification of a failure or error.
3	OPEN_REQ	Communication session establishment request.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
4	OPEN_CONF	Communication session establishment confirmation.
5	HEARTBEAT_REQ	Communication session maintenance request.
6	HEARTBEAT_CONF	Communication session maintenance confirmation.
7	CLOSE_REQ	Communication session termination request.
8	CLOSE_CONF	Communication session termination confirmation.
9	CALL_DELIVERED_ EVENT	Notification of inbound call arrival.
10	CALL_ESTABLISHED_ EVENT	Notification of answering of inbound call.
11	CALL_HELD_EVENT	Notification of call placed on hold.
12	CALL_RETRIEVED_ EVENT	Notification of call taken off hold.
13	CALL_CLEARED_ EVENT	Notification of call termination.
14	CALL_CONNECTION_ CLEARED_EVENT	Notification of the termination of a conference party connection.
15	CALL_ORIGINATED_ EVENT	Notification of outbound call initiation.
16	CALL_FAILED_EVENT	Notification of inability to complete call.
17	CALL_CONFERENCED_ EVENT	Notification of tandem connection of two calls.
18	CALL_TRANSFERRED_ EVENT	Notification of call transfer.
19	CALL_DIVERTED_ EVENT	Notification of call changing to a different service.
20	CALL_SERVICE_ INITIATED_ EVENT	Notification of the initiation of telecommunications service at a device (“dial-tone”).
21	CALL_QUEUED_EVENT	Notification of call being placed in a queue pending the availability of some resource.
22	CALL_TRANSLATION_ ROUTE_EVENT	Notification of call context data for a call that has been routed to the peripheral via a translation route.
23	BEGIN_CALL_EVENT	Notification that a call has been associated with the CTI client.
24	END_CALL_EVENT	Notification that a call is no longer associated with a CTI client.
25	CALL_DATA_UPDATE_ EVENT	Notification of a change in a call’s context data.
26	SET_CALL_DATA_REQ	Request to update one or more call variables or call wrap-up data.
27	SET_CALL_DATA_ CONF	Response confirming a previous SET_CALL_DATA request.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
28	RELEASE_CALL_REQ	Notification that all call data updates are complete.
29	RELEASE_CALL_CONF	Response confirming a previous RELEASE_CALL request.
30	AGENT_STATE_EVENT	Notification of new agent state.
31	SYSTEM_EVENT	Notification of a PG Status change.
32	CLIENT_EVENT_ REPORT_ REQ	Request to report a CTI client event.
33	CLIENT_EVENT_ REPORT_ CONF	Response confirming a previous CLIENT_EVENT_REPORT request.
34	CALL_REACHED_ NETWORK_EVENT	Notification of outbound call being connected to the network.
35	CONTROL_FAILURE_ CONF	Response indicating the failure of a proceeding control request.
36	QUERY_AGENT_ STATE_REQ	Request to obtain the current state of an agent position.
37	QUERY_AGENT_ STATE_ CONF	Response to a QUERY_AGENT_ STATE request.
38	SET_AGENT_STATE_ REQ	Request to alter the current state of an agent position.
39	SET_AGENT_STATE_ CONF	Response confirming a previous SET_AGENT_STATE request.
40	ALTERNATE_CALL_ REQ	Request to alternate between a held and an active call.
41	ALTERNATE_CALL_ CONF	Response confirming a previous ALTERNATE_CALL request.
42	ANSWER_CALL_REQ	Request to answer an alerting call.
43	ANSWER_CALL_CONF	Response confirming a previous ANSWER_CALL request.
44	CLEAR_CALL_REQ	Request to release all devices from a call.
45	CLEAR_CALL_CONF	Response confirming a previous CLEAR_CALL request.
46	CLEAR_CONNECTION_REQ	Request to release a single device from a call.
47	CLEAR_CONNECTION_CONF	Response confirming a previous CLEAR_CONNECTION request.
48	CONFERENCE_CALL_ REQ	Request to conference a held call with an active call.
49	CONFERENCE_CALL_ CONF	Response confirming a previous CONFERENCE_CALL request.
50	CONSULTATION_ CALL_REQ	Request to hold an active call and initiate a new call.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
51	CONSULTATION_ CALL_ CONF	Response confirming a previous CONSULTATION_CALL request.
52	DEFLECT_CALL_REQ	Request to move an alerting call to a different device.
53	DEFLECT_CALL_CONF	Response confirming a previous DEFLECT_CALL request.
54	HOLD_CALL_REQ	Request to place a call connection in the held state.
55	HOLD_CALL_CONF	Response confirming a previous HOLD_CALL request.
56	MAKE_CALL_REQ	Request to initiate a new call between two devices.
57	MAKE_CALL_CONF	Response confirming a previous MAKE_CALL request.
58	MAKE_PREDICTIVE_ CALL_REQ	Request to initiate a new predictive call.
59	MAKE_PREDICTIVE_ CALL_CONF	Response confirming a previous MAKE_PREDICTIVE_CALL request.
60	RECONNECT_CALL_ REQ	Request to clear a connection and retrieve a held call.
61	RECONNECT_CALL_ CONF	Response confirming a previous RECONNECT_CALL request.
62	RETRIEVE_CALL_REQ	Request to reconnect a held call.
63	RETRIEVE_CALL_ CONF	Response confirming a previous RETRIEVE_CALL request.
64	TRANSFER_CALL_REQ	Request to transfer a held call to an active call.
65	TRANSFER_CALL_ CONF	Response confirming a previous TRANSFER_CALL request.
66- 77	(reserved)	
78	QUERY_DEVICE_INFO_REQ	Request to obtain general device information.
79	QUERY_DEVICE_INFO_CONF	Response to a previous QUERY_DEVICE_INFO request.
80-81	(reserved)	
82	SNAPSHOT_CALL_REQ	Request to obtain information about a specified call.
83	SNAPSHOT_CALL_ CONF	Response to a previous SNAPSHOT_CALL request.
84	SNAPSHOT_DEVICE_ REQ	Request to obtain information about a specified device.
85	SNAPSHOT_DEVICE_ CONF	Response to a previous SNAPSHOT_DEVICE request.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
86	CALL_DEQUEUED_ EVENT	Notification of call being removed from a queue.
87- 90	(reserved)	
91	SEND_DTMF_SIGNAL_REQ	Request to transmit a sequence of DTMF tones.
92	SEND_DTMF_SIGNAL_CONF	Response to a previous SEND_ DTMF_SIGNAL_REQ request.
93	MONITOR_START_REQ	Request to initiate monitoring of a given call or device.
94	MONITOR_START_ CONF	Response to a previous MONITOR_START request.
95	MONITOR_STOP_REQ	Request to terminate monitoring of a given call or device.
96	MONITOR_STOP_CONF	Response to a previous MONITOR_STOP request.
97	CHANGE_MONITOR_ MASK_REQ	Request to change the message masks of a given call or device monitor.
98	CHANGE_MONITOR_ MASK_CONF	Response to a previous CHANGE_ MONITOR_MASK request.
99	CLIENT_SESSION_ OPENED_EVENT	Notification that a new CTI Client session has been opened.
100	CLIENT_SESSION_ CLOSED_EVENT	Notification that a CTI Client session has been terminated.
101	SESSION_MONITOR_ START_REQ	Request to initiate monitoring of a given CTI Client session.
102	SESSION_MONITOR_ START_CONF	Response to a previous SESSION_ MONITOR_START request.
103	SESSION_MONITOR_ STOP_REQ	Request to terminate monitoring of a given CTI Client session.
104	SESSION_MONITOR_ STOP_CONF	Response to a previous SESSION_ MONITOR_STOP request.
105	AGENT_PRE_CALL_ EVENT	Advance notification of a call routed to an *Enterprise Agent*.
106	AGENT_PRE_CALL_ ABORT_EVENT	Cancellation of advance notification of a call routed to an *Enterprise Agent*.
107	USER_MESSAGE_REQ	Request to send a message to other *CTI Server* client(s).
108	USER_MESSAGE_CONF	Response to a previous USER_MESSAGE_REQ request.
109	USER_MESSAGE_ EVENT	Notification of a message sent by another *CTI Server* client.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
110	REGISTER_ VARIABLES_REQ	Request to register call context variables used by application.
111	REGISTER_ VARIABLES_CONF	Response to a previous REGISTER_VARIABLES_REQ request.
112	QUERY_AGENT_ STATISTICS_REQ	Request for current agent call handling statistics.
113	QUERY_AGENT_ STATISTICS_CONF	Response to a previous QUERY_AGENT_STATISTICS_REQ request.
114	QUERY_SKILL_GROUP_STATISTICS_REQ	Request for current skill group call handling statistics.
115	QUERY_SKILL_GROUP_STATISTICS_CONF	Response to a previous QUERY_SKILL_GROUP_ STATISTICS_REQ request.
116	RTP_STARTED_EVENT	Indicates that a RTP input has been started
117	RTP_STOPPED_EVENT	Indicates that a RTP input has been stopped
118	SUPERVISOR_ASSIST_ REQ	An agent requests for assistance to their supervisor.
119	SUPERVISOR_ASSIST_ CONF	Response to a previous SUPERVISOR_ASSIST_REQ request.
120	SUPERVISOR_ASSIST_ EVENT	Notification of a supervisor assist request sent by a *CTI Server* client.
121	EMERGENCY_CALL_ REQ	An agent declaring an emergency situation to their supervisor.
122	EMERGENCY_CALL_ CONF	Response to a previous EMERGENCY_CALL_REQ request.
123	EMERGENCY_CALL_ EVENT	Notification of an emergency call request sent by a *CTI Server* client.
124	SUPERVISE_CALL_REQ	A supervisor request to perform monitor or barge-in operations.
125	SUPERVISE_CALL_ CONF	Response to a previous SUPERVISE_CALL_REQ request.
126	AGENT_TEAM_ CONFIG_REQ	Request to change temporary agent team configuration.
127	AGENT_TEAM_ CONFIG_CONF	Response to a previous AGENT_TEAM_CONFIG_REQ request.
128	AGENT_TEAM_ CONFIG_EVENT	Notification of passing the team member list
129	SET_APP_DATA_REQ	Request to update one or more application variables.
130	SET_APP_DATA_CONF	Response confirming a previous SET_APP_DATA request.
131	AGENT_DESK_ SETTINGS_REQ	Request to obtain Agent Desk Settings.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
132	AGENT_DESK_ SETTINGS_CONF	Response to a previous AGENT_DESK_SETTINGS_REQ request.
133	LIST_AGENT_TEAM_ REQ	Request to obtain a list of Agent Teams.
134	LIST_AGENT_TEAM_ CONF	Response to a previous LIST_AGENT_TEAM_REQ request.
135	MONITOR_AGENT_ TEAM_START_REQ	Request to start monitoring an Agent Team.
136	MONITOR_AGENT_ TEAM_START_CONF	Response to a previous MONITOR_ AGENT_TEAM_START_REQ request.
137	MONITOR_AGENT_ TEAM_STOP_REQ	Request to stop monitoring an Agent Team.
138	MONITOR_AGENT_ TEAM_STOP_CONF	Response to a previous MONITOR_ AGENT_TEAM_STOP_REQ request.
139	BAD_CALL_REQ	Request to mark a call as having poor voice quality.
140	BAD_CALL_CONF	Response to a previous BAD_CALL_REQ request.
141	SET_DEVICE_ ATTRIBUTES_REQ	Request to set the default attributes of a calling device.
142	SET_DEVICE_ ATTRIBUTES_CONF	Response to a previous SET_DEVICE_ ATTRIBUTES_REQ request.
143	REGISTER_SERVICE_ REQ	Request to register service for the server application.
144	REGISTER_SERVICE_ CONF	Response to a previous REGISTER_SERVICE_REQ request.
145	UNREGISTER_ SERVICE_REQ	Request to unregister service for the server application.
146	UNREGISTER_ SERVICE_CONF	Response to a previous UNREGISTER_SERVICE_REQ request.
147	START_RECORDING_ REQ	Request to start recording.
148	START_RECORDING_ CONF	Response to a previous START_RECORDING_REQ request.
149	STOP_RECORDING_ REQ	Request to stop recording
150	STOP_RECORDING_ CONF	Response to a previous STOP_RECORDING_REQ request.
151	MEDIA_LOGIN_REQ	Report agent login to MRD.
152	MEDIA_LOGIN_RESP	Response to MEDIA_LOGIN_REQ.
153	MEDIA_LOGOUT_IND	Report agent logout from MRD.
154	MAKE_AGENT_ ROUTABLE_IND	Make agent routable for MRD request.
155	MAKE_AGENT_NOT_ ROUTABLE_REQ	Make agent not routable for MRD request.
156	MAKE_AGENT_NOT_ ROUTABLE_RESP	Response to MAKE_AGENT_NOT_ ROUTABLE_REQ.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
157	MAKE_AGENT_READY_IND	Report agent made ready.
158	MAKE_AGENT_NOT_ READY_REQ	Report agent made not ready.
159	MAKE_AGENT_NOT_ READY_RESP	Response to MAKE_AGENT_NOT_ READY_REQ.
160	OFFER_TASK_IND	Report agent has been offered task, agent selected by Unified CCE.
161	OFFER_APPLICATION_ TASK_REQ	Report agent has been offered task, agent not selected by Unified CCE.
162	OFFER_APPLICATION_ TASK_RESP	Response to OFFER_APPLICATION_ TASK_REQ.
163	START_TASK_IND	Report agent has begun task, agent selected by Unified CCE.
164	START_APPLICATION_ TASK_REQ	Report agent has begun task, agent not selected by Unified CCE.
165	START_APPLICATION_ TASK_RESP	Response to START_APPLICATION_ TASK_REQ.
166	PAUSE_TASK_IND	Report agent has paused task.
167	RESUME_TASK_IND	Report agent has resumed task.
168	WRAPUP_TASK_IND	Report agent has entered wrapup for task.
169	END_TASK_IND	Report agent has ended task.
170	AGENT_MADE_NOT_ ROUTABLE_EVENT	Notify client that agent made not routable for MRD.
171	AGENT_INTERRUPT_ ADVISORY_EVENT	Notify client that agent has been interrupted by non-interruptible task.
172	AGENT_INTERRUPT_ ACCEPTED_IND	Report acceptance of the interrupt.
173	AGENT_INTERRUPT_ UNACCEPTED _IND	Report non-acceptance of the interrupt.
174	AGENT_INTERRUPT_ DONE_ADVISORY_EVENT	Notify client that interrupt has been ended.
175	AGENT_INTERRUPT_ DONE_ACCEPTED_IND	Report acceptance of interrupt end.
176	CHANGE_MAX_TASK_ LIMIT_REQ	Change the maximum number of simultaneous tasks for the agent MRD combination.
177	CHANGE_MAX_TASK_ LIMIT_RESP	Response to CHANGE_MAX_TASK_ LIMIT_REQ.
178	OVERRIDE_LIMIT_REQ	Request a task assignment even though it would exceed agent's maximum number of simultaneous tasks for the MRD.
179	OVERRIDE_LIMIT_RESP	Response to OVERRIDE_LIMIT_ REQ.
180	UPDATE_TASK_ CONTEXT_IND	Update Unified CCE task context.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
181	BEGIN_AGENT_INIT_ IND	Report begin agent and task resynchronization.
182	AGENT_INIT_REQ	Report agent's current state.
183	AGENT_INIT_RESP	Response to AGENT_INIT_REQ.
184	END_AGENT_INIT_IND	Report end of agent and task resynchronization.
185	TASK_INIT_IND	Report task's state.
186	AGENT_INIT_READY_ EVENT	Notify client that Unified CCE is ready to receive agent and task resynchronization messages.
187	GET_PRECALL_ MESSAGES_REQ	Request any pending PRE-CALL messages.
188	GET_PRECALL_ MESSAGES_RESP	Response to GET_PRECALL_ MESSAGES_REQ.
189	AGENT_LEGACY_PRE_ CALL_EVENT	Current task context.
190	FAILURE_RESP	Failure response to ARM indication messages.
191	BEGIN_TASK_EVENT	Indicates the specified task has entered the system, either queued, offered, or begun.
192	QUEUED_TASK_EVENT	Indicate the specified task has been queued in the router.
193	DEQUEUED_TASK_ EVENT	Indicate the specified task has been dequeued from the router.
194	OFFER_TASK_EVENT	Indicates the specified agent has been reserved to handle the specified task
195	START_TASK_EVENT	Indicates the specified agent has started handling the task.
196	PAUSE_TASK_EVENT	Indicates the specified agent has temporarily suspended handling of the specified task.
197	RESUME_TASK_EVENT	Indicates the specified agent has resumed handling of the specified task after having previously sent a Pause Task message.
198	WRAPUP_TASK_EVENT	Indicates the specified agent is no longer actively handling the task but is doing followup work related to the task.
199	END_TASK_EVENT	Indicates the specified agent has ended handling of the specified task.
200	TASK_DATA_UPDATE_ EVENT	Update task context for the specified task.
201	TASK_MONITOR_ START_REQ	Request to start the task monitor with the task mask in the request message.
202	TASK_MONITOR_ START_CONF	Response to TASK_ MONITOR_START_REQ.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
203	TASK_MONITOR_ STOP_REQ	Request to stop the task monitor with the monitor ID in the request message.
204	TASK_MONITOR_ STOP_CONF	Response to TASK_MONITOR_ STOP_REQ.
205	CHANGE_ TASK_ MONITOR_MASK_REQ	Request to change the task monitor mask with the new mask in the request message.
206	CHANGE_ TASK_ MONITOR_MASK_CONF	Response to CHANGE_ TASK_ MONITOR_MASK_REQ.
207	MAX_TASK_LIFETIME_EXCEEDED_EVENT	Unified CCE terminated a task which had exceeded its configured maximum lifetime – the result is equivalent to the task ending due to an end task but with a special reason code in the Termination Call Detail record.
208	SET_APP_PATH_DATA_ IND	Set or update the application path-specific data variables available to routing scripts.
209	TASK_INIT_REQ	Report task's state – used when an Unified CCE taskID has not yet been assigned to the task because the task began when the ARM client interface was down.
210	TASK_INIT_RESP	Response to the TASK_INIT_REQ message.
211	ROUTE_REGISTER_EVENT	Register to receive route requests
212	ROUTE_REGISTER_REPLY_EVENT	Reply to registration message
213	ROUTE_REQUEST_EVENT	Route request for a destination for a call
214	ROUTE_SELECT	Supplies a route destination for a route request
215	ROUTE_END	End Routing dialog
216 - 235	Reserved	Reserved
236	TEAM_CONFIG_REQ	
237	TEAM_CONFIG_EVENT	
238	TEAM_CONFIG_CONF	
239-247	Reserved	Register to receive route requests
240	CALL_ATTRIBUTE_CHANGE_EVENT	Reply to registration message
241-246	Reserved	Reserved
247	CALL_TERMINATION_EVENT	Reserved
248	CALL_AGENT_GREETING_EVENT	Status Notification of Agent Greeting request.

Table 3-1 Message Set (continued)

Number	Message Type	Purpose
249	AGENT_GREETING_CONTROL_REQ	Stop the greeting that is playing; disable or enable the Agent Greeting feature for this current login session.
250	AGENT_GREETING_CONTROL_CONF	Confirmation of AGENT_GREETING_CONTROL_REQ.

Data Types

Table 3-2 lists the data types that define fields within messages. All numeric data longer than one byte are transmitted in order of most significant byte to least significant byte. This is the canonical *network byte order* defined by TCP/IP standards.

Table 3-2 Data Types

Data Type	Meaning	Byte Size
CHAR	Signed integer, -128 to 127.	1
UCHAR	Unsigned integer, 0 to 255.	1
SHORT	Signed integer, -32,768 to 32,767.	2
USHORT	Unsigned integer, 0 to 65,535.	2
INT	Signed Integer, -2,147,483,648 to 2,147,483,647.	4
UINT	Unsigned Integer, 0 to 4,294,967,295.	4
BOOL	Boolean (False = 0, True = 1).	2
STRING[*n*]	ASCII string of length *n*.	n
UNSPEC[*n*]	Unspecified data occupying *n* consecutive bytes.	n
TIME	A date/time, expressed as the number of seconds since midnight January 1, 1970 Coordinated Universal Time (UTC).	4
MHDR	Message header (see Table 3-3).	8
NAMEDVAR	A named call context variable (see Table 3-4).	3 … 251
NAMEDARRAY	A named call context array element (see Table 3-5).	4 … 252
TASKID	Task group identifier (see Table 3-6).	12
APPPATHID	Application path identifier (see Table 3-7).	5

The MHDR data type is a common message header that precedes all messages exchanged between a CTI client and the CTI Server. Table 3-3 defines the message header format.

Table 3-3 Message Header (MHDR) Format

Field Name	Value	Data Type	Byte Size
MessageLength	The length of the message in bytes, excluding the size of the message header (the first 8 bytes).	UINT	4
MessageType	The type of message. This value determines the format of the remainder of the message.	UINT	4

The NAMEDVAR data type is a call context variable that has been defined in the Unified CCE Expanded_Call_Variable_Table. This variable length data type may appear in the floating part of a message and has the format shown in Table 3-4:

Table 3-4 Named Call Context Variable (NAMEDVAR) Format

Subfield	Value	Data Type	Max. Size
Tag	NAMED_VARIABLE_TAG (= 82). The floating field tag that indicates that the following data is a named call context variable.	UCHAR	1
FieldLength	The total length of the VariableName and Variable Value fields, including the null-termination bytes. The value of this field may range from 3 to 251.	UCHAR	1
VariableName	The null-terminated defined name of the variable.	STRING	33
VariableValue	The null-terminated value of the variable.	STRING	211

The NAMEDARRAY data type is a call context variable that has been defined in the Unified CCE Expanded_Call_Variable_Table. This variable length data type may appear in the floating part of a message and has the format shown in Table 3-5.

Table 3-5 Named Call Context Array Variable (NAMEDARRAY) Format

Subfield	Value	Data Type	Max. Size
Tag	NAMED_ARRAY_TAG (= 83). The floating field tag that indicates that the following data is a named call context array variable.	UCHAR	1
FieldLength	The total length of the VariableIndex, Variable Name, and VariableValue fields, including the null-termination bytes. The value of this field may range from 4 to 252.	UCHAR	1
VariableIndex	The index of the array variable.	UCHAR	1
VariableName	The null-terminated defined name of the array variable.	STRING	33
VariableValue	The null-terminated value of the array variable.	STRING	211

Table 3-6 defines the TASKID field format.

Table 3-6 TASKID Format

Field Name	Value	Data Type	Byte Size
TaskGroupHigh	The most significant 4 bytes of the Task Group ID. The Task Group ID links multiple Termination Call Detail (TCD) records together for reporting purposes. This would be used for instance when the same customer interaction involved multiple tasks over time because the work is stopped and then restarted by the same or another agent.	INT	4
TaskGroupLow	The least significant 4 bytes of the Task Group ID.	INT	4
SequenceNumber	The Task Group ID is unchanged for the lifetime of a task (and the lifetime of related tasks that are to be grouped with it), but the combination of Task Group ID and Sequence Number is unique for every termination record.	INT	4

Table 3-7 defines the Application Path ID field format.

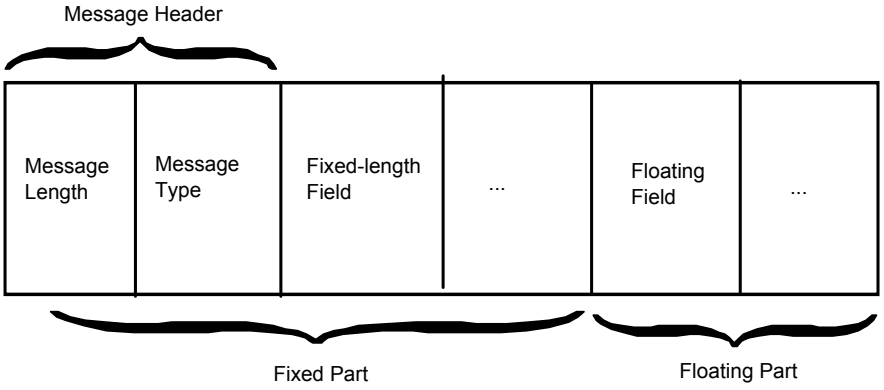
Table 3-7 Application Path ID (APPPATHID) Format

Subfield	Value	Data Type	Max. Size
Tag	APP_PATH_ID_TAG (= 97). The floating field tag that indicates that the following data is an application path ID.	UCHAR	1
AppPathID	The application path ID.	INT	4

Message Formats

Messages contain either a fixed part only or a fixed part and a floating part. The fixed part of a message contains the message header and all required, fixed length fields. The variable part of a message immediately follows the fixed part. It contains one or more floating fields that are optional and/or variable in length. The message type field in the message header determines the format of the message, and therefore indicates if the message includes a floating part and what types of floating fields may appear within it. Figure 3-1 illustrates the CTI Server message format.

Figure 3-1 CTI Server Message Format

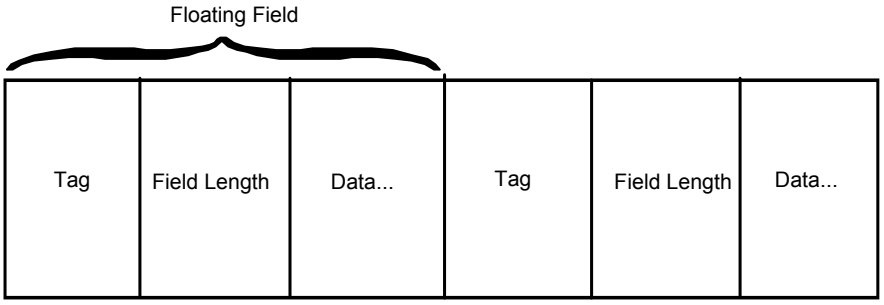


Floating Fields

Each floating field has the format listed in Table 3-8. The field begins with a one byte tag, which identifies the field type. Following the tag is a one byte field length, which indicates the number of bytes of data in the field (excluding the tag and field length). The data immediately follows the FieldLength. The maximum size listed for each floating field is the maximum number of data bytes allowed. It does not include the tag and field length bytes. For string data, it includes the null termination byte.

Floating fields are packed together in the floating part of the message. The tag of one floating field immediately follows the data of the previous field. The message length (in the message header) indicates the end of the message. Figure 3-2 illustrates the format of a floating field.

Figure 3-2 Floating Field Format



Within the floating part, floating fields may appear in any order. In general, each floating field appears only once unless the field is a member of a list. In this case, a fixed field in the message indicates the number of list entries present.

Table 3-8 Floating Field Subfields

Subfield	Value	Data Type	Byte Size
Tag	The type of the floating field.	UCHAR	1
FieldLength	The number of bytes, *n*, in the Data subfield of the floating field.	UCHAR	1
Data	The data.	Depends on field type	n

For a list of possible floating field tag values, see Table 6-4.

Invoke IDs

All request messages that can be sent to the CTI Server contain a field called the *InvokeID*. The InvokeID value is returned in the corresponding response message to the CTI client. A CTI client usually places a value in this field that enables it to associate a received response with the corresponding request. Typically, this is simply a counter that is incremented as each request message is sent.

Call Event Data

The CISCO CTI Interface presents Call Event data using a CSTA-like model; however, the underlying ACD datalink may or may not conform to this model. This means that, depending upon the type of ACD being used, some Call Event messages may not be generated, and some of the CSTA message data for other events may not be available. Be aware that the interpretation of Call Event data is very peripheral-specific, particularly when multiple ACD types are being used.

For a discussion of peripheral-specific considerations, see the *CTI OS Developer's Guide for Cisco Unified Contact Center Enterprise*.

Device IDs

The Call Event messages detailed later in this document typically provide several different device ID fields. Depending upon the type of peripheral and the nature of the event, the device ID may represent a Trunk number, a Trunk Group number, or an agent teleset number (extension). Some peripheral types may not provide a device ID for one or more fields. To handle these situations, the Call Event messages provide device IDs using two fields: a fixed field indicating whether or not the device ID was provided and enumerating the type of device identified, and a floating field containing the device ID (if provided).

CTI Client History

The Call Event messages also provide a list of CTI clients associated with the current call (if any). This information is provided using a separate floating field for each CTI client in the list, and a fixed field providing a count of the number of entries in the list. Each list entry's floating field uses the same tag value.

Event Cause Codes

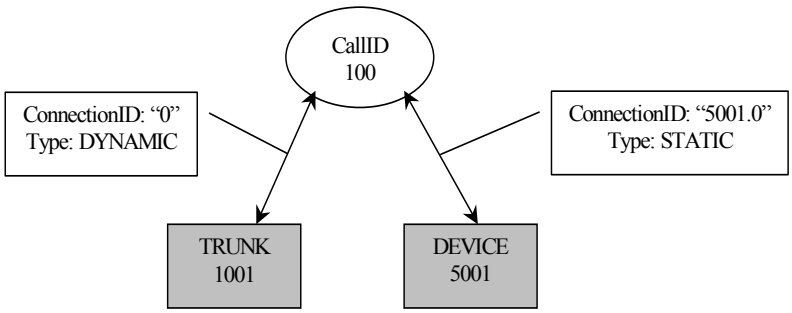
Most Call Event messages include an EventCause fixed field that may provide a reason for the occurrence of the event. In most cases no event cause information is supplied (CEC_NONE).

For a list of EventCause codes that may be reported, see Table 6-9.

Call Identification

CTI Server uses the CSTA method of identifying calls. A numeric ConnectionCallID identifies a call; each connection of a device to that call is identified by a ConnectionDeviceID string and an enumerated ConnectionDeviceIDType value (see Figure 3-3). All call related messages identify the ConnectionCallID as well as the ConnectionDeviceIDType and ConnectionDeviceID of the call connection that is the subject of the event.

Figure 3-3 Sample CSTA Call/Device/ConnectionID Values



A ConnectionDeviceID uniquely identifies a call connection. However, it cannot directly identify the connected device; use other event message fields for that purpose. In some cases, the ConnectionDeviceID may simply be the ID of the connected device, the connected deviceID with additional identifying data included, or a string that does not contain the deviceID at all. A valid CTI Server application can make no assumption about the content or format of a ConnectionDeviceID.

Occasionally, both the ConnectionDeviceID and the numeric ConnectionCallID are required in order to properly identify the subject call. This occurs when the ACD uses the ConnectionCallID value from an ACD call as the ConnectionCallID value for any related consultative calls. This poses two particularly significant requirements for applications: they must be able to keep track of two calls with the same numeric ConnectionCallID value, and they must be able to decide which of the two calls is being referenced by any given call event message. These requirements are relatively easy to implement by keeping track of the ConnectionDeviceIDs associated with each call. The call that has a ConnectionDeviceID that matches the ConnectionDeviceID provided in the call event message is the call that is the subject of the event. The only difficult case is determining which call is the subject when a new call connection is created. For this case, the following rule applies:

> When more than one call with the same ConnectionCallID value exists, the connection being created by a CALL_ESTABLISHED_ EVENT shall apply to the call that does not yet have a destination connection established.

Typically, when this occurs, one call will have been the subject of a prior CALL_ESTABLISHED_EVENT and will have two connections; the other will have only one originating connection. The CALL_ESTABLISHED_EVENT will therefore create the second connection on that call. It should never be the case that both calls have already been the subject of a CALL_ESTABLISHED_EVENT.

Failure Indication Messages

The CTI Server may indicate errors to the CTI client using the FAILURE_CONF and FAILURE_EVENT messages. The CTI Server may use the FAILURE_CONF message in response to any request message from the CTI client. The CTI Server sends the FAILURE_CONF message instead of the positive confirmation message specific to the request. The format of the FAILURE_CONF message is defined in Table 3-9.

Table 3-9 FAILURE_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 1.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Status	A status code indicating the cause of the failure. The possible status codes are defined in Table 6-1.	UINT	4
Maximum message size (including header):			16

The CTI Server may use the FAILURE_EVENT message to asynchronously indicate a failure or error condition to the CTI client. The format of the FAILURE_EVENT message is defined in Table 3-10.

Table 3-10 FAILURE_EVENT Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 2.	MHDR	8
Status	A status code indicating the cause of the failure. The possible status codes are defined in .	UINT	4
Maximum message size (including header):			12

CHAPTER 4

Session Management

This chapter describes how CTI Server initiates and maintains TCP connections and CTI Server sessions. It discusses the following topics:

- Configuring TCP/IP transport services
- Establishing and maintaining a TCP connection
- Initializing, maintaining, and terminating a CTI Server session, and the CTI Server messages related to these tasks

Configuring TCP/IP Transport Services

TCP/IP transport services are used in CTI client/server communications. From the Windows Socket interface, enable the TCP “linger” option and set it to zero to close TCP connections immediately upon request without waiting for previously transmitted data to be acknowledged. This ensures that communications can be re-established quickly after a failure.

If possible, disable the Nagle transmit delay algorithm of TCP to ensure timely delivery of all data. (Disabling the Nagle algorithm is sometimes referred to as the TCP_NODELAY option.) Disabling this algorithm ensures that messages are always transmitted immediately upon request.

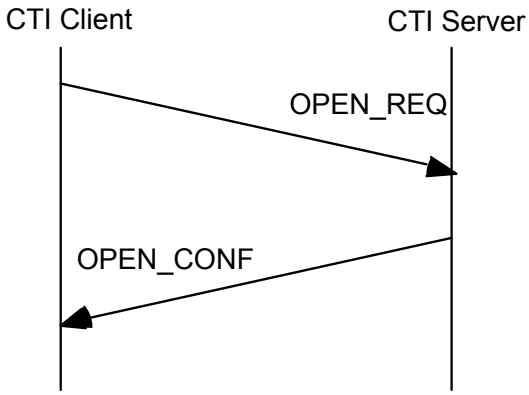
Connection Management

You should configure the CTI clients with two sets of hostname/port number pairs; one for the IP address and TCP port number of the CTI Server on side “A” and the other for the corresponding CTI Server on side “B”. The CTI clients should alternately attempt to connect to each side until a connection is established. Once a connection between the CTI client and the CTI Server has been established, the connection remains in place until a failure occurs or the client closes the connection. Connection failures may be detected by the TCP layer or by the heartbeat message mechanism described later in this chapter. If a failure occurs, the CTI client should again alternately attempt to establish a connection to either side until a new connection is established.

Session Initialization

Once a TCP connection has been established, you can attempt to initialize a communications session by sending an OPEN_REQ message to the CTI Server. The CTI Server responds with an OPEN_CONF message to confirm the successful establishment of a session. Figure 4-1 depicts the message flow.

Figure 4-1 Session Initialization Message Flow



CTI Service Masks

Table 4-1 shows the CTIService masks.

Table 4-1 CTI Service Masks

MaskName	Description	Value
CTI_SERVICE_ DEBUG	Causes all messages exchanged during the current session to be captured to a file for later analysis.	0x80000000
CTI_SERVICE_ CLIENT_ EVENTS	Client receives call and agent state change events associated with a specific ACD phone.	0x00000001
CTI_SERVICE_CALL_ DATA_UPDATE	Client may modify call context data.	0x00000002
CTI_SERVICE_ CLIENT_CONTROL	Client may control calls and agent states associated with a specific ACD phone.	0x00000004
CTI_SERVICE_ CONNECTION_ MONITOR	Establishment and termination of this session cause corresponding Unified CCE Alarm events to be generated.	0x00000008
CTI_SERVICE_ALL_ EVENTS	Client receives all call and agent state change events (associated with any ACD phone).	0x00000010
CTI_SERVICE_ PERIPHERAL_ MONITOR	Client may dynamically add and remove devices and/or calls that it wishes to receive call and agent state events for.	0x00000020
CTI_SERVICE_ CLIENT_MONITOR	Client receives notification when all other CTI client sessions are opened and closed, and may monitor the activity of other CTI client sessions.	0x00000040
CTI_SERVICE_ SUPERVISOR	Client may request supervisor services.	0x00000080

Table 4-1 CTI Service Masks (continued)

MaskName	Description	Value
CTI_SERVICE_ SERVER	Client identify itself as server application.	0x00000100
CTI_SERVICE_ AGENT_REPORTING	Client may reporting/routing ARM(Agent Reporting And Management) messages.	0x00000400
CTI_SERVICE_ALL_ TASK_EVENTS	Client receives all task events.	0x00000800
CTI_SERVICE_ TASK_MONITOR	Client receives monitored task events.	0x00001000
CTI_AGENT_STATE_CONTRO L_ONLY	Client can change agent state only. Call control is not allowed. If a client requests for CTI_SERVICE_ CLIENT_CONTROL, the server may grant this flag to indicate that only agent state change is allowed.	0x00002000
Unused		0x00004000
CTI_DEVICE_STATE_CONTR OL	The client/server wishes to register and get resource state change requests	0x00008000
CTI_SERVICE_ UPDATE_EVENTS	Requests that this client receive update notification events. (No data)	0x00080000
CTI_SERVICE_ IGNORE_ DUPLICATE_ AGENT_EVENTS	Request to suppress duplicate agent state events.	0x00100000
CTI_SERVICE_ IGNORE_CONF	Do not send confirmations for third party requests.	0x00200000
CTI_SERVICE_ACD_ LINE_ONLY	Request that events for non-ACD lines not be sent. (Unified CCE only)	0x00400000

OPEN_REQ Message

Table 4-2 defines the OPEN_REQ message.

Table 4-2 OPEN_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 3.	MHDR	8
InvokeID	An ID for this request message, to be returned in the corresponding confirm message.	UINT	4
VersionNumber	The version number of the interface requested by the CTI client. This defines the version of all messages in the message set. For this release, set this value to 13.	UINT	4

Table 4-2 OPEN_REQ Message Format (continued)

IdleTimeout	The session idle timer, expressed in seconds. If the session is idle (no messages received) for this length of time, the CTI Server should reset the TCP connection and await the establishment of a new session. This value is typically 4 times the heartbeat interval used by the CTI client. If the CTI client does not use the HEARTBEAT_REQ message, set this field to 0xFFFFFFFF.	UINT	4
PeripheralID	The Peripheral ID of the ACD whose events are of interest to the client. Required for Client Events service; otherwise, set this field to the special value NULL_ PERIPHERAL_ID.	UINT	4
ServicesRequested	A bitwise combination of the CTI Services listed in that the CTI client is requesting.	UINT	4
CallMsgMask	A bitwise combination of the Unsolicited Call Event Message Masks listed that the CTI client wishes to receive.	UINT	4
AgentStateMask	A bitwise combination of Agent State Masks that the CTI client wishes to receive.	UINT	4
ConfigMsgMask	A bitwise combination of Configuration Event Masks that the CTI client wishes to receive.		
Reserved1	Reserved for future use; set to zero.	UINT	4
Reserved2	Reserved for future use; set to zero.	UINT	4
Reserved3	Reserved for future use; set to zero.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ClientID (required)	The user ID of the CTI client.	STRING	64
ClientPassword (required)	The password of the user identified by ClientID. ClientID and Client Password are optionally used to authenticate the CTI client making the session open request. This field must be present even if authentication is not being used (it may be of length zero).	UNSPEC	64
ClientSignature (optional)	A character string appended to the Call Client History list when this CTI client becomes associated with a call. If not provided, the ClientID is used.	STRING	64
AgentExtension	The agent's ACD teleset extension. For CLIENT EVENTS service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided by the CTI Client.	STRING	16

Table 4-2 OPEN_REQ Message Format (continued)

AgentID	The agent's ACD login ID. For CLIENT EVENTS service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided by the CTI Client.	STRING	12
AgentInstrument	The agent's ACD instrument number. For CLIENT EVENTS service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided by the CTI Client.	STRING	64
ApplicationPathID	The ID of an application path which contains configured MRD Peripheral combinations for this Unified CCE-configured application instance.	INT	4
Maximum message size (including header)			318

Table 4-3 lists the unsolicited call event message masks.

Table 4-3 Unsolicited Call Event Message Masks

Mask Name	Description	Value
CALL_DELIVERED_ MASK	Set when client wishes to receive CALL_DELIVERED_EVENT messages.	0x00000001
CALL_QUEUED_ MASK	Set when client wishes to receive CALL_QUEUED_EVENT messages.	0x00000002
CALL_ESTABLISHED_ MASK	Set when client wishes to receive CALL_ESTABLISHED_ EVENT messages.	0x00000004
CALL_HELD_MASK	Set when client wishes to receive CALL_HELD_ EVENT messages.	0x00000008
CALL_RETRIEVED_ MASK	Set when client wishes to receive CALL_RETRIEVED_EVENT messages.	0x00000010
CALL_CLEARED_ MASK	Set when client wishes to receive CALL_CLEARED_ EVENT messages.	0x00000020
CALL_CONNECTION_ CLEARED_MASK	Set when client wishes to receive CALL_CONNECTION_ CLEARED_EVENT messages.	0x00000040
CALL_ORIGINATED_ MASK	Set when client wishes to receive CALL_ ORIGINATED_EVENT messages.	0x00000080
CALL_ CONFERENCED_ MASK	Set when client wishes to receive CALL_CONFERENCED_ EVENT messages.	0x00000100

Table 4-3 Unsolicited Call Event Message Masks (continued)

Mask Name	Description	Value
CALL_ TRANSFERRED_ MASK	Set when client wishes to receive CALL_ TRANSFERRED_ EVENT messages.	0x00000200
CALL_DIVERTED_ MASK	Set when client wishes to receive CALL_DIVERTED_ EVENT messages.	0x00000400
CALL_SERVICE_ INITIATED_MASK	Set when client wishes to receive CALL_SERVICE_ INITIATED_EVENT messages.	0x00000800
CALL_ TRANSLATION_ ROUTE_MASK	Set when client wishes to receive CALL_ TRANSLATION_ ROUTE_EVENT messages.	0x00001000
BEGIN_CALL_MASK	Set when client wishes to receive BEGIN_CALL_ EVENT messages.	0x00002000
END_CALL_MASK	Set when client wishes to receive END_CALL_EVENT messages.	0x00004000
CALL_DATA_ UPDATE_MASK	Set when client wishes to receive CALL_DATA_ UPDATE_ EVENT messages.	0x00008000
CALL_FAILED_MASK	Set when client wishes to receive CALL_FAILED_ EVENT messages.	0x00010000
CALL_REACHED_ NETWORK_MASK	Set when client wishes to receive CALL_REACHED_NETWORK_ EVENT messages.	0x00020000
CALL_DEQUEUED_ MASK	Set when client wished to receive CALL_DEQUEUED_ EVENT messages.	0x00040000
AGENT_PRE_CALL_MASK	Set when client wished to receive AGENT_PRE_CALL_ EVENT messages.	0x00080000,
AGENT_PRE_CALL_ABORT_MASK	Set when client wished to receive AGENT_PRE_CALL_ABORT_ EVENT messages.	0x00100000,
RTP_STARTED_MASK	Set when client wished to receive RTP_STARTED_ EVENT messages.	0x00200000,
RTP_STOPPED_MASK	Set when client wished to receive RTP_STOPPED_MASK EVENT messages.	0x00400000
AGENT_TEAM_CONFIG_MASK	Set when client wished to receive AGENT_TEAM_CONFIG_MASK _EVENT messages.	0x00800000

Table 4-3 Unsolicited Call Event Message Masks (continued)

Mask Name	Description	Value
AGENT_LEGACY_PRE_CALL_MASK	Set when client wishes to receive AGENT_LEGACY_PRE_CALL_ EVENT messages.	0x01000000
CALL_ATTRIBUTE_CHANGE_MASK	CALL_ATTRIBUTE_CHANGE_EV ENT messages.	0x02000000
CALL_TERMINATION_MASK	Reserved	0x04000000
CALL_AGENT_GREETING_MASK	Set when client wishes to receive CALL_AGENT_GREETING_EVE NT messages.	0x08000000

Table 4-4 lists the agent state masks.

Table 4-4 Agent State Masks

Mask Name	Description	Value
AGENT_LOGIN_MASK	Set when client wishes to receive “login” AGENT_STATE_ EVENT messages.	0x00000001
AGENT_LOGOUT_ MASK	Set when client wishes to receive “logout” AGENT_STATE_ EVENT messages.	0x00000002
AGENT_NOT_READY_ MASK	Set when client wishes to receive “not ready” AGENT_STATE_ EVENT messages.	0x00000004
AGENT_AVAILABLE_ MASK	Set when client wishes to receive “available” AGENT_STATE_ EVENT messages.	0x00000008
AGENT_TALKING_ MASK	Set when client wishes to receive “talking” AGENT_STATE_ EVENT messages.	0x00000010
AGENT_WORK_NOT_ READY_MASK	Set when client wishes to receive “work not ready” AGENT_ STATE_EVENT messages.	0x00000020
AGENT_WORK_ READY_ MASK	Set when client wishes to receive “work ready” AGENT_STATE_ EVENT messages.	0x00000040
AGENT_BUSY_ OTHER_ MASK	Set when client wishes to receive “busy other” AGENT_STATE_ EVENT messages.	0x00000080
AGENT_RESERVED_ MASK	Set when client wishes to receive “reserved” AGENT_STATE_ EVENT messages.	0x00000100
AGENT_HOLD_MASK	Set when client wishes to receive “hold” AGENT_STATE_ EVENT messages.	0x00000200

OPEN_CONF Message

Table 4-5 defines the OPEN_CONF message.

Table 4-5 OPEN_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 4.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding OPEN_REQ message.	UINT	4
ServicesGranted	A bitwise combination of the CTI Services listed in that the CTI client has been granted. Services granted may be less than those requested.	UINT	4
MonitorID	The identifier of the event monitor created by the OPEN_REQ, or zero if no monitor was created.	UINT	4
PGStatus	The current operational status of the Peripheral Gateway. Any non-zero indicates a component failure or communication outage that prevents normal CTI operations.	UINT	4
ICMCentral ControllerTime	The current Central Controller date and time.	TIME	4
PeripheralOnline	The current Unified CCE on-line status of the agent's peripheral, when Client Events service has been granted. Otherwise, set this value to TRUE only when all peripherals monitored by the PG are on-line.	BOOL	2
PeripheralType	The type of the peripheral when Client Events Service has been granted.	USHORT	2
AgentState	The current state of the associated agent phone (Client Events Service only).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Byte Size**
AgentExtension (Client Events Service Only)	The agent's ACD teleset extension, when Client Events service has been granted and the agent is currently logged in on the ACD.	STRING	16
AgentID (Client Events Service Only)	The agent's ACD login ID, when Client Events service has been granted and the agent is currently logged in on the ACD.	STRING	12
AgentInstrument (Client Events Service Only)	The agent's ACD instrument number, when Client Events service has been granted and the agent is currently logged in on the ACD.	STRING	64

Table 4-5 OPEN_CONF Message Format (continued)

NumPeripherals	The number of PeripheralID/info (FltPeripheralID/MultilineAgentControl) pairs specified in the floating part of the message. This field is 0 for non-CCE peripherals, or if PeripheralID is specified in the OPEN_REQ message.	USHORT	2
FltPeripheralID	The peripheralID for the next field (MultilineAgentControl).	UINT	4
MultilineAgentControl	Specifies if multi-line agent control is available on the peripheral named in the preceding FltPeripheralID field. 0 = single line only, 1 = multi-line enabled.	USHORT	2
Maximum message size (including header):			132

For possible values for the PeripheralType and AgentState fields, see Chapter 6, "Constants and Status Codes."

If for any reason the CTI Server determines that a new session should not be opened, it responds to the OPEN_REQ message with a FAILURE_CONF message. If required floating data has not been provided, a FAILURE_CONF message is returned with the status code set to E_CTI_REQUIRED_DATA_MISSING.

If a CTI client tries to open a session for Client Events service and the provided teleset information items are not consistent with each other, a FAILURE_CONF message is returned with the status code set to E_CTI_INCONSISTENT_AGENT_DATA. If the indicated ACD teleset is already associated with a *different* CTI client, the CTI Server refuses to open the new session and returns a FAILURE_CONF message with the status code set to E_CTI_DEVICE_IN_USE. If the indicated ACD teleset is already associated with the *same* CTI client, the existing session is terminated and the CTI Server continues to open the new session.

During an OPEN_REQ of an ALL_EVENTS client session, the CTI Server responds with an OPEN_CONF message to confirm the successful establishment of a session. In addition to the OPEN_CONF, SYSTEM_EVENT messages are sent to the ALL_EVENTS client, per peripheral, to indicate the status of each peripheral associated with the PG.

If the CTI Server rejects an OPEN_REQ message, you should reset the TCP connection. The status code received in the rejection (see Chapter 6, "Constants and Status Codes.") indicates the message data that should be corrected before retrying the attempt to establish a session.

Normally, you should receive a response to the OPEN_REQ message within 5 seconds. Some failure scenarios will cause all connected CTI clients to lose their connection to the CTI Server and cause them to subsequently reconnect and reopen their sessions. In the worst case situations there could be hundreds or even thousands of simultaneous OPEN_REQ messages sent to the CTI Server, causing significant response delays. For this reason, you should allow at least 30 seconds, and in larger configurations (more than 500 clients) 60 or more seconds, before considering a lack of response to the OPEN_REQ message as a failure to open the session. You should then reset the TCP connection, and may reconnect and retry the OPEN_REQ after a short delay.

Session Maintenance

Compared to some other protocols, TCP/IP is relatively slow at detecting and recovering from communication path failures. If an IP packet is dropped within the network, retransmission does not occur until the sender notices a time-out. This time-out period is usually long enough to allow for worst-case round-trip delays and network congestion. If you need more rapid error detection, you may send an optional HEARTBEAT_REQ message to the CTI Server whenever no messages have been sent for the *heartbeat interval*. Upon receipt of a HEARTBEAT_REQ message, the CTI Server should immediately respond with a HEARTBEAT_CONF message. If three heartbeats go unconfirmed, the CTI client should declare a session failure and reset the TCP connection.

You must determine the appropriate heartbeat interval for a production environment—it depends on the application and the environment. It should represent a reasonable balance between the speed of failure detection and the network bandwidth consumed by heartbeat messages and their corresponding confirmations. In cases where there are very few CTI clients, such as a CTI Bridge, the minimum heartbeat interval of 5 seconds should suffice. Workstation (desktop) clients should use a much larger heartbeat interval (at least 90 seconds is recommended), since these clients typically number into the hundreds and possibly thousands. A Heartbeat Interval of –1 disables heartbeats. The default and recommended setting for application developers is –1. However, if the TCP/IP time-out period is adequate, or if there is nothing the application can do even if it is aware that something is wrong, it may be appropriate to disable heartbeats even in a production environment.

Figure 4-2 depicts the heartbeat message flow. Table 4-6 and Table 4-7 define the HEARTBEAT_REQ and HEARTBEAT_CONF messages, respectively.

Figure 4-2 Heartbeat Message Flow

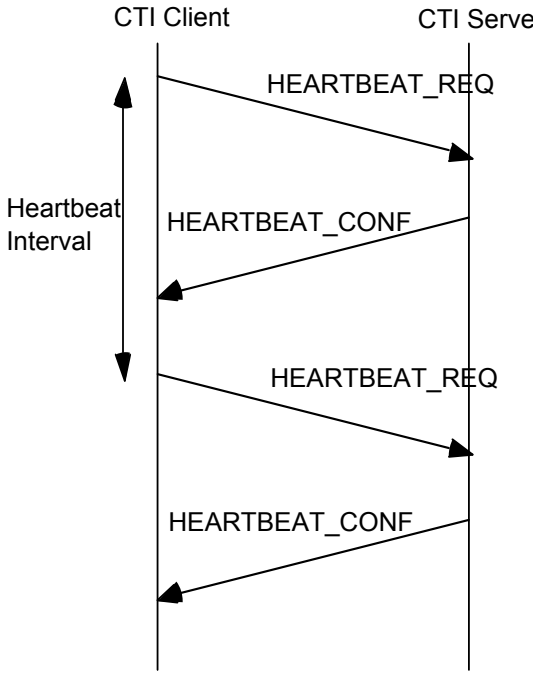


Table 4-6 HEARTBEAT_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 5.	MHDR	8
InvokeID	An ID for this request message, to be returned in the corresponding confirm message.	UINT	4
Maximum message size (including header):			12

Table 4-7 HEARTBEAT_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 6.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding HEARTBEAT_REQ message.	UINT	4
Maximum message size (including header):			12

The CTI Server does not initiate HEARTBEAT_REQ messages. The CTI Server detects failures using the IdleTimeout value from the OPEN_REQ message. If you are using heartbeat messages, the CTI client should set the IdleTimeout value to four times the heartbeat interval. If the CTI Server does not receive any messages (including HEARTBEAT_REQ messages) for this period of time, the CTI Server declares a session failure and resets the TCP connection.

The CTI Server may respond to a HEARTBEAT_REQ message with a FAILURE_CONF. This indicates to the CTI client that the CTI Server is off-line, and the CTI client should reset the TCP connection.

Session Termination

The CTI client may initiate the graceful termination of a communication session by sending a CLOSE_REQ message. The CTI Server responds with a CLOSE_CONF message. Upon receipt of the CLOSE_CONF message, the CTI client can reset the TCP connection. The CTI client should wait up to 5 seconds for the CLOSE_CONF message before resetting the connection.

The CTI Server may indicate to the CTI client that it no longer wishes to communicate by sending an unsolicited FAILURE_EVENT message with the Status field set to E_CTI_CTI_SERVER_OFFLINE. Upon receipt of this message, the CTI client should close the session.

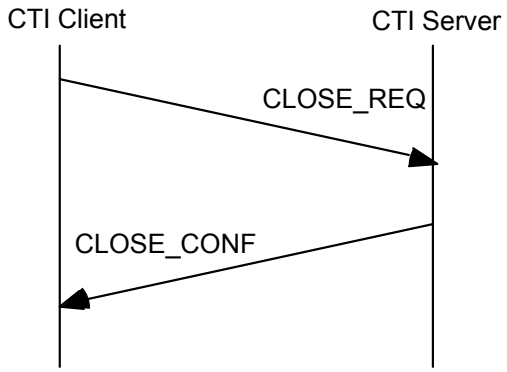
Note For information on the FAILURE_EVENT message, see Chapter 3, "Messaging Conventions."

The CLOSE_REQ message includes a status code that indicates the reason for closing the session. You can set the status code to one of the following:

- E_CTI_NO_ERROR if the CTI client initiated the request that the session be terminated
- E_CTI_CTI_SERVER_OFFLINE if the CTI Server is no longer online
- E_CTI_TIMEOUT if the CTI Server does not respond to a request message within the time-out period.

Figure 4-3 depicts the session termination message flow.

Figure 4-3 Session Termination Message Flow



The CLOSE_REQ and CLOSE_CONF messages are defined in Table 4-8 and Table 4-9.

Table 4-8 CLOSE_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 7.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
Status	A status code indicating the reason for closing the session.	UINT	4
Maximum message size (including header):			16

Table 4-9 CLOSE_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 8.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding CLOSE_REQ message.	UINT	4
Maximum message size (including header):			12

CHAPTER 5

Application Level Interfaces

Cisco has defined the following application level interfaces between the CTI Server and a CTI client.

- **Client Events**. This service provides real-time call and agent state change, and status information related to a specific ACD agent position, to a CTI client.
- **All Events**. This service provides real-time call and agent state change, and status information for all ACD calls and agent positions, to a CTI client.
- **Peripheral Monitor**. This service lets a CTI client dynamically change the list of calls and devices that it wishes to receive call and agent state change messages for.
- **Client Monitor**. This service lets a CTI client receive notifications whenever any other CTI Client session is opened or closed. This service also enables the CTI Client to monitor the activity of other CTI Client sessions.
- **Supervisor**. This service lets a CTI client perform agent supervisory functions.
- **Call Data Update**. This service lets a CTI client modify certain variable parts of the call state while a call is active.
- **Miscellaneous**. This service informs CTI clients of significant Peripheral Gateway events.
- **Connection Monitor**. This service monitors the CTI client connection and generates alarm events whenever the CTI client connection is established or terminated.
- **Client Control**. This service permits direct control of agent state (such as ACD login and logout), as well as control of inbound and outbound calls from the CTI client application.
- **Server Service**. This service enables the CTI Server to register a service that it wishes to provide.

You specify which levels you want in the ServicesRequested field of the OPEN_REQ message.

For information on the OPEN_REQ message, see Chapter 4, “Session Management.”

This chapter describes these services and their associated messages.

Client Events Service

The Client Events service is the heart of the CTI Interface. This service consists of unsolicited messages sent to CTI clients when the peripheral reports that a call event or agent state change associated with the CTI client’s teleset has occurred. You receive these messages if you set the CTI_SERVICE_CLIENT_EVENTS bit in the ServicesRequested field of the OPEN_REQ message. There are no request or confirmation messages associated with unsolicited events.

Call Event messages are modeled after the CSTA messaging conventions. Call Events messages, in general, follow the CSTA naming conventions and event paradigms but use a simpler set of data types than those defined by CSTA.

Every call is announced to the CTI client with an unsolicited BEGIN_CALL_EVENT message. This message informs the client that it has just been associated with a new call (i.e., the CTI Server has assigned the CTI client application a new call to process) and provides the initial call context data. Additional call and agent state events are then sent to the client as the call is handled, depending upon the type of ACD involved and the treatment that the call receives. Finally, an END_CALL_EVENT message is sent to the CTI client when its association with a call is dissolved.

The content of most of the Call Event message is event specific and, in many cases, peripheral-specific. Some ACDs may not provide all of these events.

For peripheral-specific Call Event message information, see the *CTI OS Developer's Guide for Cisco Unified Contact Center Enterprise*.

The relative order of call event messages and any corresponding agent state change event messages is not specified. An agent state event message indicating the agent is in the "talking" state, for example, might be sent before or after the corresponding call established event message.

Table 5-1 lists the Client Events service messages.

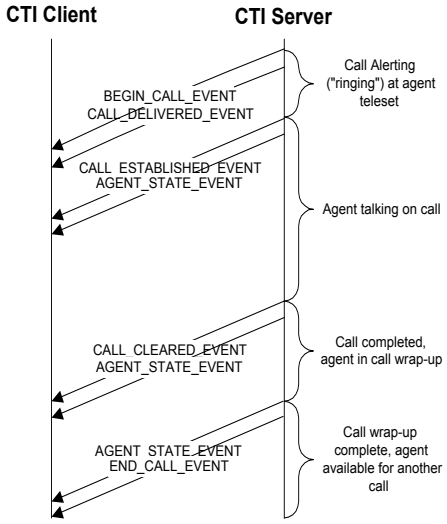
Table 5-1 Client Events Service Messages

Message	When Sent to CTI Client
BEGIN_CALL_EVENT	When the CTI Server associates a call with the CTI client.
END_CALL_EVENT	When CTI Server dissolves association between a call and the CTI Client.
CALL_DATA_UPDATE_EVENT	When call context data changes.
CALL_DELIVERED_EVENT	When a call arrives at the agent's teleset or when an inbound ACD trunk is seized and the client has the All Events service enabled.
CALL_ESTABLISHED_EVENT	When a call is answered at the agent's teleset.
CALL_HELD_EVENT	When a call is placed on hold at the agent's teleset.
CALL_RETRIEVED_EVENT	When a call previously placed on hold at the agent's teleset is resumed.
CALL_CLEARED_EVENT	When a call is terminated.
CALL_CONNECTION_ CLEARED_EVENT	When a party drops from a conference call.
CALL_ORIGINATED_EVENT	Sent to CTI client upon initialization of a call from the peripheral.
CALL_FAILED_EVENT	When a call cannot be completed.
CALL_CONFERENCED_EVENT	When calls are joined into a conference call.
CALL_TRANSFERRED_EVENT	When a call is transferred to another destination.
CALL_DIVERTED_EVENT	When a call is removed from a previous delivery target.
CALL_SERVICE_INITIATED_ EVENT	When telecommunications service is initiated at the agent's teleset.
AGENT_STATE_EVENT	When an agent's state changes.

Table 5-1 Client Events Service Messages (continued)

CALL_REACHED_NETWORK_ EVENT	When an outbound call is connected to another network.
CALL_QUEUED_EVENT	When a call is placed in a queue pending the availability of a resource.
CALL_DEQUEUED_EVENT	When a call is removed from a queue.
AGENT_PRE_CALL_EVENT	When a call is routed to Enterprise Agent.
AGENT_PRE_CALL_ABORT_ EVENT	When a call that was previously announced through an AGENT_PRE_CALL_ EVENT message cannot be routed as intended.
RTP_STARTED_EVENT	Indicates that a Real Time Protocol (RTP) media stream has been started.
RTP_STOPPED_EVENT	Indicates that a Real Time Protocol (RTP) media stream has been stopped.

Figure 5-1 Typical Unsolicited Call Event Message Flow



BEGIN_CALL_EVENT

When the CTI Server associates a call with the CTI client, it sends the client a BEGIN_CALL_EVENT message. This message provides the call ID and the initial call context data. The combination of ConnectionCallID, ConnectionDeviceIDType, and ConnectionDeviceID uniquely identify the call. This message always precedes any other event messages for that call. If any subsequent changes to the call context data occur, the CTI Server sends CALL_DATA_UPDATE_EVENT messages containing the changed call data to the CTI client. There can be multiple calls with the same ConnectionCallID value.

Table 5-2 defines the format of the BEGIN_CALL_EVENT message.

Table 5-2 BEGIN_CALL_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 23.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
NumCTIClients	The number of CTI clients previously associated with this call. This value also indicates the number of CTI client signatures and timestamps in the floating part of the message.	USHORT	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
CallType	The general classification of the call type (Table 6-12).	USHORT	2
ConnectionDevice IDType	The type of device ID in the Connection DeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
CalledParty Disposition	Indicates the disposition of the called party.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
DNIS (optional)	The DNIS provided with the call.	STRING	32
DialedNumber (optional)	The number dialed.	STRING	40
CallerEntered Digits (optional)	The digits entered by the caller in response to IVR prompting.	STRING	40
RouterCallKeyDay	Together with the Router CallKeyCallID field forms the unique 64-bit key for locating this call's records in the Unified CCE. Only provided for Post-routed and Translation-routed calls.	UINT	4

Table 5-2 BEGIN_CALL_EVENT Message Format (continued)

RouterCallKey CallID	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
RouterCallKey SequenceNumber	Together with RouterCallKeyDay and RouterCallKeyCallID fields forms the TaskID	UINT	4
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of NamedVariable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of NamedVariable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. SeeTable 3-5 for the format of this field.	NAMED ARRAY	252
CTIClientSignature	The Client Signature of a CTI client previously associated with this call. There may be more than one CTIClient Signature field in the message (see NumCTIClients).	STRING	64
CTIClient Timestamp (optional)	The date and time that the preceding CTIClientSignature was first associated with the call. There may be more than one CTIClient Timestamp field in the message (see NumCTIClients). This field always immediately follows the CTIClient Signature field to which it refers.	TIME	4
CallReferenceID (optional)	For Unified CCE systems where the Unified CM provides it, this will be a unique call identifier.	UNSPEC	32
Maximum message size (including header):			4561

END_CALL_EVENT

The CTI Server sends an END_CALL_EVENT message to the CTI client when the association between a call and the CTI client is dissolved. This message does not necessarily indicate that the subject call has been terminated; it indicates only that the CTI client is no longer responsible for processing the call and will be receiving no further call event messages for the call.

Table 5-3 defines the format of the END_CALL_EVENT message:

Table 5-3 END_CALL_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 24.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDeviceIDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
Connection DeviceID	The device ID of the device associated with the connection.	STRING	64
Maximum message size (including header):			90

CALL_AGENT_GREETING_EVENT

This message indicates if the agent greeting has started, finished, or failed after the Agent Greeting request has been made. Table 5-4 defines the format of the message.

Table 5-4 CALL_AGENT_GREETING_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 248	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Peripheral ID of the ACD where the device is located.	UINT	4
ConnectionDeviceIDType	The Call ID value assigned to this call by the peripheral. Agent's ACD call ID.	USHORT	2

Table 5-4 CALL_AGENT_GREETING_EVENT Message Format (continued)

Fixed Part			
ConnectionCallID	The Call ID value assigned to this call by the peripheral. Agent's ACD call ID.	UINT	4
EventCode	EventCode = 0, Greeting has started. EventCode = 1, Greeting has ended with SUCCESS. EventCode = 2, Failed to play the greeting for any reason.	USHORT	2
PeripheralErrorCode	Peripheral-specific error data, if EventCode = 2. Zero otherwise.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Byte Size**
ConnectionDeviceID (*required*)	The identifier of the connection between the call and the device.	STRING	64
AgentID (*required*)	The agent's ACD login ID.	STRING	12
GreetingType (*required*)	The greeting type.	STRING	32
Maximum message size (including header)			200

CALL_DATA_UPDATE_EVENT

The CTI Server sends a CALL_DATA_UPDATE_EVENT message to the CTI client when changes to the call context data occur. This message contains only the items that have changed. The initial call context is provided in the BEGIN_CALL_EVENT message. The CALL_DATA_UPDATE_EVENT message is defined in Table 5-5.

Table 5-5 CALL_DATA_UPDATE_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 25.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
NumCTIClients	The number of CTI Clients associated with this call. This value also indicates the number of CTI Client signatures and timestamps that are present in the floating part of the message.	USHORT	2

Table 5-5 CALL_DATA_UPDATE_EVENT Message Format (continued)

NumNamedVariables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
CallType	The general classification of the call type (Table 6-12).	USHORT	2
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value previously assigned to this call by the peripheral or Unified CCE.	UINT	4
NewConnectionDeviceIDType	Indicates the type of the connection identifier supplied in the NewConnectionDeviceID floating field (Table 6-13).	USHORT	2
NewConnectionCallID	The new Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
CalledPartyDisposition	Indicates the disposition of called party	USHORT	2
CampaignID	Campaign ID for value that appears in the Agent Real Time table. Set to zero if not used.	UINT	4
QueryRuleID	Query rule ID for value that appears in the Agent Real Time table. Set to zero if not used.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ConnectionDeviceID (required)	The previous identifier of the call connection.	STRING	64
NewConnectionDeviceID (required)	The new identifier of call connection.	STRING	64
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
DNIS (optional)	The DNIS provided with the call.	STRING	32
DialedNumber (optional)	The number dialed.	STRING	40
CallerEnteredDigits (optional)	The digits entered by the caller in response to IVR prompting.	STRING	40
RouterCallKeyDay (optional)	Together with the RouterCallKeyCallID field forms the unique 64-bit key for locating this call's records in the Unified CCE. Only provided for Post-routed and Translation-routed calls.	UINT	4
RouterCallKeyCallID (optional)	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
RouterCallKey SequenceNumber	Together with RouterCallKeyDay and RouterCallKeyCallID fields forms the TaskID.	UINT	4
CallVariable1 (optional)	Call-related variable data.	STRING	41

Table 5-5 CALL_DATA_UPDATE_EVENT Message Format (continued)

…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
CustomerPhoneNumber (optional)	Customer phone number for value that appears in the Agent Real Time table.	STRING	20
CustomerAccount Number (optional)	Customer Account Number for value that appears in the Agent Real Time table.	STRING	32
CTIClientSignature (optional)	The Client Signature of a CTI Client that was previously associated with this call. There may be more than one CTIClientSignature field in the message (see NumCTIClients).	STRING	64
CTIClientTimestamp (optional)	The date and time that the preceding CTI Client signature was first associated with the call. There may be more than one CTIClientTimestamp field in the message (see NumCTIClients). This field always immediately follows the CTIClientSignature field to which it refers.	TIME	4
CallReferenceID (optional)	For Unified CCE systems where the Unified CM provides it, this will be a unique call identifier.	UNSPEC	32
Maximum message size (including header)			4697

CALL_DELIVERED_EVENT

The CTI Server may send a CALL_DELIVERED_EVENT message to the CTI client in two cases:

- A call arrives at the agent's teleset.
- An inbound ACD trunk is seized and the client has the All Events service enabled.

The LocalConnectionState field indicates which case applies. The CALL_DELIVERED_EVENT message is defined in Table 5-6.

Table 5-6 CALL_DELIVERED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 9.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
LineHandle	When LocalConnectionState is LCS_ALERTING, this field identifies the alerting teleset line, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	The type of the teleset line in the LineHandle field, if any (Table 6-14). Otherwise this field is set to 0xffff.	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupNumber	The number of the agent Skill Group the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following this table.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
AlertingDevice Type	The type of device ID in the AlertingDevic ID floating field (Table 6-11).	USHORT	2
CallingDeviceType	The type of device ID in the CallingDeviceID floating field (Table 6-11).	USHORT	2

Table 5-6 CALL_DELIVERED_EVENT Message Format (continued)

CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2
LastRedirect DeviceType	The type of device ID in the LastRedirectDeviceID floating field (Table 6-11).	USHORT	2
LocalConnection State	The state of the local end of the connection. When a call is delivered to an agent teleset, the LocalConnectionState will be LCS_ALERTING (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
NumNamedVariables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
AlertingDeviceID (optional)	The device ID of the device that is alerting.	STRING	64
CallingDeviceID (optional)	The device ID of the calling device.	STRING	64
CalledDeviceID (optional)	The device ID of the originally called device.	STRING	64
LastRedirect Device ID (optional)	The device ID of the previously alerted device.	STRING	64
TrunkNumber (optional)	The number representing a trunk.	UINT	4
TrunkGroup Number (optional)	The number representing a trunk group.	UINT	4
SecondaryConnectionCallID	The ID of the consultation Call that Unified CCX placed from the CTI port to the agent device. **Unified Contact Center Express (Unified CCX).**	UINT	4
ANI (*optional*)	The calling line ID of the caller.	STRING	40
ANI_II (*optional*) (V11+)	ANI II (Intelligent Information) digits. - Currently not populated.	STRING	2
UserToUserInfo (*optional*)	The ISDN user-to-user information element.	UNSPEC	131
DNIS (*optional*)	The DNIS provided with the call.	STRING	32
DialedNumber (*optional*)	The number dialed.	STRING	40
CallerEnteredDigits (*optional*)	The digits entered by the caller in response to IVR prompting.	STRING	40

Table 5-6 CALL_DELIVERED_EVENT Message Format (continued)

CallVariable1 (*optional*)	Call-related variable data.	STRING	41
...	...	...	...
CallVariable10 (*optional*)	Call-related variable data.	STRING	41
CallWrapupData (*optional*)	Call-related wrapup data.	STRING	40
NamedVariable (*optional*)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of NamedVariable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Section 3.2 for the format of this field.	NAMEDVAR	251
NamedArray (*optional*)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of NamedVariable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See section 3.2 for the format of this field.	NAMED ARRAY	252
Maximum message size (including header):			400

Skill Group Number field

Following is a list of how various ACDs process the SkillGroupNumber field.

- Enterprise Agent, Alcatel, and Avaya Communication Manager (ACM) (if *not* in EAS mode) require a valid SkillGroupNumber and use it
- Nortel Meridian and Spectrum ignore the SkillGroupNumber field altogether and use the ACD default
- ACM (in EAS mode) and Aspect process the SkillGroupNumber field in the following fashion:
  - Use a valid SkillGroupNumber if one is supplied
  - If SkillGroupNumber is omitted or set to –1, use the ACD defaults
  - Any other value for SkillGroupNumber results in a failure; in this case, use the last valid SkillGroupNumber for the agent

CALL_ESTABLISHED_EVENT

When a call is answered at the agent's teleset, the CTI Server may send a CALL_ESTABLISHED_EVENT message to the CTI client. The CALL_ESTABLISHED_EVENT message is defined in Table 5-7:

Table 5-7 CALL_ESTABLISHED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 10.	MHDR	8

Table 5-7 CALL_ESTABLISHED_EVENT Message Format (continued)

MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the Connection DeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
LineHandle	Identifies the teleset line being used.	USHORT	2
LineType	The type of the teleset line (Table 6-14).	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupNumber	The number of the agent Skill Group the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
AnsweringDevice Type	The type of device ID in the AnsweringDeviceID floating field (Table 6-11).	USHORT	2
CallingDeviceType	The type of device ID in the CallingDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2
LastRedirect DeviceType	The type of device ID in the LastRedirect DeviceID floating field (Table 6-11).	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			

Table 5-7 CALL_ESTABLISHED_EVENT Message Format (continued)

Field Name	Value	Data Type	Max. Size
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
AnsweringDevice ID (*optional*)	The device ID of the device that answered the call.	STRING	64
CallingDeviceID (*optional*)	The device ID of the calling device.	STRING	64
CalledDeviceID (optional)	The device ID of the originally called device.	STRING	64
LastRedirectDevice ID (*optional*)	The device ID of the previously alerted device.	STRING	64
TrunkNumber (*optional*)	The number representing a trunk.	UINT	4
TrunkGroup Number (*optional*)	The number representing a trunk group.	UINT	4
Maximum message size (including header):			400

CALL_HELD_EVENT

The CTI Server may send a CALL_HELD_EVENT message to the CTI client when a call is placed on hold at the agent's teleset. The CALL_HELD_EVENT message is defined in Table 5-8.

Table 5-8 CALL_HELD_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 11.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
HoldingDeviceType	The type of device ID in the HoldingDeviceID floating field (Table 6-11).	USHORT	2

Table 5-8 CALL_HELD_EVENT Message Format (continued)

LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
HoldingDeviceID (optional)	The device ID of the device that activated the hold.	STRING	64
Maximum message size (including header)			162

CALL_RETRIEVED_EVENT

The CTI Server may send a CALL_RETRIEVED_EVENT message to the CTI client when a call previously placed on hold at the agent's teleset is resumed. This is defined in Table 5-9.

Table 5-9 CALL_RETRIEVED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 12.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectioDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
RetrievingDevice Type	The type of device ID in the RetrievingDeviceID floating field (Table 6-11).	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-9 CALL_RETRIEVED_EVENT Message Format (continued)

ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
RetrievingDevice ID (optional)	The device ID of the device that deactivated hold.	STRING	64
Maximum message size (including header):			162

CALL_CLEARED_EVENT

The CTI Server sends a CALL_CLEARED_EVENT message to the CTI client when a call is terminated, usually when the last device disconnects from a call. The CALL_CLEARED_EVENT message is defined in Table 5-10.

Table 5-10 CALL_CLEARED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 13.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the cleared connection.	STRING	64
Maximum message size (including header):			94

CALL_CONNECTION_CLEARED_EVENT

The CTI Server may send a CALL_CONNECTION_CLEARED_ EVENT message to the CTI client when a party drops from a conference call. The CALL_CONNECTION_CLEARED_ EVENT message is defined in Table 5-11.

Table 5-11 CALL_CONNECTION_CLEARED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 14.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
ReleasingDevice Type	The type of device ID in the ReleasingDeviceID floating field (Table 6-11).	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the cleared connection.	STRING	64
ReleasingDeviceID (optional)	The device ID of the device that cleared the connection.	STRING	64
Maximum message size (including header):			162

CALL_ORIGINATED_EVENT

The CTI Server may send a CALL_ORIGINATED_EVENT message to the CTI client when the peripheral initiates an outbound call. The CALL_ORIGINATED_EVENT message is defined in Table 5-12.

Table 5-12 CALL_ORIGINATED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 15.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
LineHandle	Identifies the teleset line being used.	USHORT	2
LineType	The type of the teleset line (Table 6-14).	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupNumber	The number of the agent SkillGroup the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) if not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
CallingDeviceType	The type of device ID in the CallingDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2

Table 5-12 CALL_ORIGINATED_EVENT Message Format (continued)

LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
CallingDeviceID (optional)	The device ID of the calling device.	STRING	64
CalledDeviceID (optional)	The device ID of the originally called device.	STRING	64
Maximum message size (including header):			252

CALL_FAILED_EVENT

The CTI Server may send a CALL_FAILED_EVENT message to the CTI client when a call cannot be completed. The CALL_FAILED_EVENT message is defined in Table 5-13.

Table 5-13 CALL_FAILED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 16.	MHDR	8
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
FailingDeviceType	The type of device ID in the FailingDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-13 CALL_FAILED_EVENT Message Format (continued)

ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
FailingDeviceID (optional)	The device ID of the failing device.	STRING	64
CalledDeviceID (optional)	The device ID of the called device.	STRING	64
Maximum message size (including header):			230

CALL_CONFERENCED_EVENT

The CTI Server may send a CALL_CONFERENCED_EVENT message to the CTI client when calls are joined into a conference call. The CALL_CONFERENCED_EVENT message is defined in Table 5-14.

Table 5-14 CALL_CONFERENCED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 17.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
PrimaryDeviceIDType	The type of device ID in the PrimaryDeviceID floating field (Table 6-11).	USHORT	2
PrimaryCallID	The Call ID value assigned to the primary call by the peripheral or Unified CCE.	UINT	4
LineHandle	The teleset line being used.	USHORT	2
LineType	The type of the teleset line (Table 6-14).	USHORT	2
SkillGroupNumber	The number of the agent SkillGroup the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2

Table 5-14 CALL_CONFERENCED_EVENT Message Format (continued)

NumParties	The number of active connections associated with this conference call, up to a maximum of 16 (Table 6-3). This value also indicates the number of ConnectedParty CallID, ConnectedParty DeviceIDType, and ConnectedPartyDeviceID floating fields in the floating part of the message.	USHORT	2
SecondaryDevice IDType	The type of device ID in the SecondaryDeviceID floating field (Table 6-11).	USHORT	2
SecondaryCallID	The Call ID value assigned to the secondary call by the peripheral or Unified CCE.	UINT	4
ControllerDeviceType	The type of device ID in the ControllerDeviceID floating field (Table 6-11).	USHORT	2
AddedPartyDeviceType	The type of device ID in the AddedPartyDeviceID floating field (Table 6-11).	USHORT	2
LocalConnectionState	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
PrimaryDeviceID	The device ID of the device associated with the primary call connection.	STRING	64
SecondaryDeviceID	The device ID of the device associated with the secondary call connection.	STRING	64
ControllerDeviceID (optional)	The device ID of the conference controller device.	STRING	64
AddedPartyDeviceID (optional)	The device ID of the device added to the call.	STRING	64
ConnectedPartyCallID (optional)	The Call ID value assigned to one of the conference call parties. There may be more than one Connected Party CallID field in the message (see NumParties).	UINT	4
ConnectedPartyDevice IDType (optional)	The type of device ID (Table 6-11) in the following ConnectedParty DeviceID floating field. There may be more than one Connected PartyDevice IDType field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyCallID field.	USHORT	2
ConnectedParty DeviceID (optional)	The device identifier of one of the conference call parties. There may be more than one ConnectedParty DeviceID field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyDeviceIDType field.	STRING	64
Maximum message size (including header):			1534

CALL_TRANSFERRED_EVENT

The CTI Server may send a CALL_TRANSFERRED_EVENT message to the CTI client when a call is transferred to another destination. The CALL_TRANSFERRED_EVENT message is defined in Table 5-15.

Table 5-15 CALL_TRANSFERRED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 18.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
PrimaryDeviceIDType	The type of device ID in the PrimaryDeviceID floating field (Table 6-11).	USHORT	2
PrimaryCallID	The Call ID value assigned to the primary call by the peripheral or Unified CCE.	UINT	4
LineHandle	Identifies the teleset line being used.	USHORT	2
LineType	The type of the teleset line (Table 6-14).	USHORT	2
SkillGroupNumber	The number of the agent Skill Group the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2

Table 5-15 CALL_TRANSFERRED_EVENT Message Format (continued)

NumParties	The number of active connections associated with this conference call, up to a maximum of 16 (Table 6-3). This value also indicates the number of ConnectedParty CallID, ConnectedParty DeviceID Type, and ConnectedParty DeviceID floating fields in the floating part of the message.	USHORT	2
SecondaryDevice IDType	The type of device ID in the SecondaryDeviceID floating field (Table 6-11).	USHORT	2
SecondaryCallID	The Call ID value assigned to the secondary call by the peripheral or Unified CCE.	UINT	4
TransferringDeviceType	The type of device ID in the TransferringDeviceID floating field (Table 6-11).	USHORT	2
TransferredDeviceType	The type of device ID in the TransferredDeviceID floating field (Table 6-11).	USHORT	2
LocalConnectionState	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
PrimaryDeviceID	The device ID of the device associated with the primary call connection.	STRING	64
SecondaryDeviceID	The device ID of the device associated with the secondary call connection.	STRING	64
TransferringDeviceID (optional)	The device ID of the device that transferred the call.	STRING	64
TransferredDeviceID (optional)	The device ID of the device to which the call was transferred.	STRING	64
ConnectedPartyCallID (optional)	The Call ID value assigned to one of the call parties. There may be more than one ConnectedPartyCallID field in the message (see NumParties).	UINT	4

Table 5-15 CALL_TRANSFERRED_EVENT Message Format (continued)

ConnectedPartyDevice IDType (optional)	The type of device ID (Table 6-11) in the following ConnectedParty DeviceID floating field. There may be more than one ConnectedParty DeviceIDType field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyCallID field.	USHORT	2
ConnectedParty DeviceID (optional)	The device identifier of one of the call parties. There may be more than one ConnectedParty Device ID field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyDevice IDType field.	STRING	64
Maximum message size (including header):			1534

CALL_DIVERTED_EVENT

The CTI Server may send a CALL_DIVERTED_EVENT message to the CTI client when a call is removed from a previous delivery target. The CALL_DIVERTED_EVENT message is defined in Table 5-16.

Table 5-16 CALL_DIVERTED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 19.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4

Table 5-16 CALL_DIVERTED_EVENT Message Format (continued)

ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
DivertingDeviceType	The type of device ID in the DivertingDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2
LocalConnectionState	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The device ID of the device associated with the connection.	STRING	64
DivertingDeviceID (optional)	The device ID of the device from which the call was diverted.	STRING	64
CalledDeviceID (optional)	The device ID of the device to which the call was diverted.	STRING	64
Maximum message size (including header):			238

CALL_SERVICE_INITIATED_EVENT

The CTI Server may send a CALL_SERVICE_INITIATED_EVENT message to the CTI client upon the initiation of telecommunications service (“dial tone”) at the agent’s teleset. The CALL_SERVICE_INITIATED_EVENT message is defined in Table 5-17.

Table 5-17 CALL_SERVICE_INITIATED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 20.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4

Table 5-17 CALL_SERVICE_INITIATED_EVENT Message Format (continued)

LineHandle	Identifies the teleset line being used.	USHORT	2
LineType	The type of the teleset line (Table 6-14).	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupNumber	The number of the agent SkillGroup the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_ SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
CallingDeviceType	The type of the device identifier supplied in the CallingDevice ID floating field (Table 6-11).	USHORT	2
LocalConnectionState	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The device ID of the device associated with the connection.	STRING	64
CallingDeviceID (optional)	The device ID of the calling device.	STRING	64
CallReferenceID (optional)	For Unified CCE systems where the Unified CM provides it, this will be a unique call identifier.	UNSPEC	32
COCConnectionCallID (optional)	If specified, indicates that this call is a call on behalf of a consult call.	UINT	4
COCCallConnection DeviceIDType (optional)	If specified, indicates the type of connection identifier specified in the ConnectionDeviceID floating field for the original call (Table 6-13).	USHORT	2
Maximum message size (including header):			184

AGENT_STATE_EVENT

An agent state change (such as logging on or becoming available to handle incoming calls) generates an AGENT_STATE_EVENT message to the CTI client. The AGENT_STATE_EVENT message is defined in Table 5-18.

Table 5-18 AGENT_STATE_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 30.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the call activity occurred.	UINT	4
SessionID	The CTI client SessionID of the Client_Events session associated with this agent, or zero if no such CTI session is currently open.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
SkillGroupState	One of the values from Table 6-5 representing the current state of the associated agent with respect to the indicated Agent Skill Group.	USHORT	2
StateDuration	The number of seconds since the agent entered this state (typically 0).	UINT	4
SkillGroupNumber	The number of the agent SkillGroup affected by the state change, as known to the peripheral. May contain the special value NULL_SKILL_ GROUP (Table 6-3) if not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	USINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup affected by the state change. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
AgentState	One of the values from Table 6-5 representing the current overall state of the associated agent.	USHORT	2
EventReasonCode	A peripheral-specific code indicating the reason for the state change.	USHORT	2
MRDID	Media Routing Domain ID as configured in Unified CCE and the ARM client.	INT	4

Table 5-18 AGENT_STATE_EVENT Message Format (continued)

NumTasks	The number of tasks currently assigned to the agent – this is the number that Unified CCE compares to the MaxTaskLimit to decide if the agent is available to be assigned additional tasks. This includes active tasks as well as those that are offered, paused, and in wrapup.	UINT	4
AgentMode	The mode that the agent will be in when the login completes. ROUTABLE = 0, NOT ROUTABLE = 1	USHORT	2
MaxTaskLimit	The maximum number of tasks that the agent can be simultaneously working on.	UINT	4
ICMAgentID	The Unified CCE Skill Target ID, a unique agent identifier for Unified CCE.	INT	4
AgentAvailability Status	An agent is Available, or eligible to be assigned a task in this Media Routing Domain if the agent meets all of these conditions: • The agent is not in Not Ready state for the Media Routing Domain. • The agent is not working on a non-interruptible task in another Media Routing Domain. • The agent has not reached the maximum task limit for this Media Routing Domain. An available agent is eligible to be assigned a task. Who can assign a task to the agent is determined by whether or not the agent is Routable. An agent is *ICMAvailable* in MRD X if he is available in X and Routable with respect to X. An agent is *ApplicationAvailable* in MRD X if he is available in X and not Routable with respect to X. Otherwise an agent is NotAvailable in MRD X. NOT AVAILABLE = 0, ICM AVAILABLE = 1, APPLICATION AVAILABLE=2	UINT	4
NumFltSkillGroups	If information for more than one skill group is passed this should be non-zero and indicate the number of floating FltSkillGroupNumber, FltSkillGroupID, FltSkillGroupPriority, and FltSkillGroupState floating fields present in the floating part of the message (up to 99). If 0, a single set of those entities is specified in the fixed part of the message.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
CTIClientSignature (optional)	The Client Signature of the CTI client associated with this agent.	STRING	64

Table 5-18 AGENT_STATE_EVENT Message Format (continued)

AgentID (optional)	The agent's ACD login ID.	STRING	12
AgentExtension (optional)	The agent's ACD teleset extension	STRING	16
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Duration (optional)	If present specifies in seconds the anticipated time in the state specified. This useful for work states to estimate the time before going ready or not ready.	UINT	4
NextAgentState	The next agent state (if known)	USHORT	2
Direction	The direction of the call the agent is curremtly working on: 0 = None 1 = In 2 =Out 3 = Other In 4 = Other Out 5 = OutboundReserve 6 = OutboundPreview 7 = OutboundPredictiv	UINT	4
FltSkillGroup Number	The number of an agent SkillGroup queue that the call has been added to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupNumber field in the message (see NumSkillGroups).	INT	4
FltSkillGroupID	The Unified CCE SkillGroupID of the agent SkillGroup queue that the call has been added to. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupID field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupNumber field.	UINT	4
FltSkillGroup Priority	The priority of the skill group, or 0 when skill group priority is not applicable or not available. There may be more than one SkillGroupPriority field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupID field.	USHORT	2
FltSkillGroupState	One of the values from Table 6-5 representing the current state of the associated agent with respect to the skill group. There may be more than one SkillGroupState field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupPriority field.	USHORT	2
Maximum message size (including header):			224

CALL_REACHED_NETWORK_EVENT

The CTI Server may send a CALL_REACHED_NETWORK_EVENT message to the CTI client when an outbound call is connected to another network. The CALL_REACHED_NETWORK_EVENT message is defined in Table 5-19.

Table 5-19 CALL_REACHED_NETWORK_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 34.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	Indicates the type of the teleset line given in the LineHandle field.	USHORT	2
TrunkUsedDevice Type	The type of device ID in the TrunkUsedDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalledDeviceID floating field (Table 6-11).	USHORT	2
LocalConnectionState	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The device ID of the device associated with the connection.	STRING	64
TrunkUsedDeviceID (optional)	The device ID of the selected trunk.	STRING	64
CalledDeviceID (optional)	The device ID of the called device.	STRING	64
TrunkNumber (optional)	The number representing a trunk.	UINT	4

Table 5-19 CALL_REACHED_NETWORK_EVENT Message Format (continued)

TrunkGroup Number (optional)	The number representing a trunk group.	UINT	4
Maximum message size (including header):			246

CALL_QUEUED_EVENT

The CTI Server may send a CALL_QUEUED_EVENT message to the CTI client when a call is placed in a queue pending the availability of some resource. The CALL_QUEUED_EVENT message is defined in Table 5-20.

Table 5-20 CALL_QUEUED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 21.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
QueueDeviceType	The type of device ID in the QueueDeviceID floating field (Table 6-11).	USHORT	2
CallingDeviceType	The type of device ID in the CallingDeviceID floating field (Table 6-11).	USHORT	2
CalledDeviceType	The type of device ID in the CalleDeviceID floating field (Table 6-11).	USHORT	2
LastRedirect DeviceType	The type of device ID in the LastRedirectDeviceID floating field (Table 6-11).	USHORT	2
NumQueued	The number of calls in the queue for this service.	USHORT	2

Table 5-20 CALL_QUEUED_EVENT Message Format (continued)

NumSkillGroups	The number of Skill Group queues that the call has queued to, up to a maximum of 20. This value also indicates the number of Skill GroupNumber, Skill GroupID, and SkillGroupPriority floating fields in the floating part of the message.	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
QueueDeviceID (optional)	The device ID of the queuing device.	STRING	64
CallingDeviceID (optional)	The device ID of the calling device.	STRING	64
CalledDeviceID (optional)	The device ID of the called device.	STRING	64
LastRedirectDevice ID (optional)	The device ID of the redirecting device.	STRING	64
SkillGroupNumber	The number of an agent SkillGroup queue that the call has been added to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroup Number field in the message (see NumSkillGroups). Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	INT	4
SkillGroupID	The Unified CCE SkillGroupID of the agent SkillGroup queue that the call has been added to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupID field in the message (see NumSkill Groups). This field always immediately follows the corresponding SkillGroupNumber field.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available. There may be more than one SkillGroup Priority field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupID field.	USHORT	2
Maximum message size (including header):			698

CALL_DEQUEUED_EVENT

The CTI Server may send a CALL_DEQUEUED_EVENT message to the CTI client when a call is removed from a queue. The CALL_DEQUEUED_EVENT message is defined in Table 5-21.

Table 5-21 CALL_DEQUEUED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 86.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call activity occurred.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
QueueDeviceType	Indicates the type of device identifier supplied in the QueueDeviceID floating field (Table 6-11).	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4
NumQueued	The number of calls remaining in the queue for this service.	USHORT	2
NumSkillGroups	The number of Skill Group queues that the call has been removed from, up to a maximum of 20. This value also indicates the number of SkillGroupNumber, Skill GroupID, and SkillGroup Priority floating fields in the floating part of the message. A zero value indicates that the call has been implicitly removed from all queues.	USHORT	2
LocalConnection State	The state of the local end of the connection (Table 6-8).	USHORT	2
EventCause	A reason for the occurrence of the event (Table 6-9).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
Connection DeviceID	The device ID of the device associated with the connection.	STRING	64

Table 5-21 CALL_DEQUEUED_EVENT Message Format (continued)

SkillGroup Number	The number of an agent Skill Group queue that the call has been removed from, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupNumber field in the message (see NumSkillGroups). Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup queue that the call has been removed from. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupID field in the message (see NumSkill Groups). This field always immediately follows the corresponding SkillGroup Number field.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available. There may be more than one SkillGroup Priority field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupID field.	USHORT	2
Maximum message size (including header):			262

CALL_ATTRIBUTE_CHANGE_EVENT

Changes to certain key attributes of the call will generate a CALL_ATTRIBUTE_CHANGE_EVENT to the client.

The CALL_ATTRIBUTE_CHANGE_EVENT message is defined inTable 5-22:

Table 5-22 CALL_ATTRIBUTE_CHANGE_EVENT message format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header.	MHDR	8
MonitorID	Always 0	UINT	4
PeripheralID (CRS_PERIPHERAL_ID for ICD)	The ICM PeripheralID of the ACD where the call is located.	UINT	4
PeripheralType (PT_CRS or PT_IPCC)	The type of the peripheral	USHORT	2
ConnectionDeviceIDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field	USHORT	4
CallTypeID	The ICM call type of the call. May be 0 if not changed.	UINT	4

ServiceNumber	The Peripheral Number of Service of the call. May be 0 if not changed.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ConnectionDeviceID (Optional)	The identifier of the connection between the call and the device.	STRING	64

AGENT_PRE_CALL_EVENT

An AGENT_PRE_CALL_EVENT message is generated when a call is routed to Enterprise Agent. The message contains the call context data that is assigned to the call after it arrives at the agent's desktop. Unlike the translation route event message, which is only sent to All Event clients, the AGENT_PRE_CALL_ EVENT message is also sent to the targeted Client Events client, if any. Typically, the AGENT_PRE_CALL_EVENT message is received before the BEGIN_ CALL_EVENT announcing the arrival of the call at the agent's device. Application developers should note that it is possible, but not typical, for the call to arrive at the agent and to receive a BEGIN_CALL_EVENT message and other call event messages for the call before the AGENT_PRE_CALL_EVENT message is received.

The AGENT_PRE_CALL_EVENT message is defined in Table 5-23.

Table 5-23 AGENT_PRE_CALL_EVENT Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 105.	MHDR	8
MonitorID	The Monitor ID of the device monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The Unified CCE ServiceID of the service that the call is attributed to. May contain the special value NULL_ SERVICE (Table 6-3) when not applicable or not available.	UINT	4

Table 5-23 AGENT_PRE_CALL_EVENT Message Format (continued)

SkillGroupNumber	The number of the agent Skill Group the call is attributed to, as known to the peripheral. May contain the special value NULL_ SKILL_GROUP (Table 6-3) when not applicable or not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
MRDID	Media Routing Domain ID as configured in Unified CCE and the ARM client.	INT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The agent instrument that the call will be routed to.	STRING	64
RouterCallKeyDay	Together with the RouterCallKeyCallID field forms the unique 64-bit key for locating this call's records in the Unified CCE	UINT	4
RouterCallKey CallID	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
RouterCallKey SequenceNumber	Together with RouterCallKeyDay and RouterCallKeyCallID fields forms the TaskID	UINT	4
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
DialedNumber (optional)	The number dialed.	STRING	40
CallerEnteredDigits (optional)	The digits entered by the caller in response to IVR prompting.	STRING	40
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251

Table 5-23 AGENT_PRE_CALL_EVENT Message Format (continued)

NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
Maximum message size (including header):			3303

AGENT_PRE_CALL_ABORT_EVENT

An AGENT_PRE_CALL_ABORT_EVENT message is generated when a call that was previously announced via an AGENT_PRE_CALL_EVENT cannot be routed as intended (due to a busy or other error condition detected during call routing) to Enterprise Agent. This message is defined in Table 5-24:

Table 5-24 AGENT_PRE_CALL_ABORT_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Max. Size**
MessageHeader	Standard message header. MessageType = 106.	MHDR	8
MonitorID	The Monitor ID of the device monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
MRDID	Media Routing Domain ID as configured in Unified CCE and the ARM client.	INT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The agent instrument that the call was to have been routed to.	STRING	64
RouterCallKeyDay	Together with the RouterCall KeyCallID field forms the unique 64-bit key for locating this call's records in the Unified CCE.	UINT	4
RouterCallKey CallID	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
RouterCallKey SequenceNumber	Together with RouterCallKeyDay and RouterCallKeyCallID fields forms the TaskID	UINT	4
Maximum message size (including header):			100

RTP_STARTED_EVENT

The RTP_STARTED_EVENT message indicates that an RTP media stream has been started. There are two media streams for audio media so there will be two RTP Started events, one indicating the input has started (i.e. the phone is listening) and the other that the output has started (i.e. the outgoing media from the agent phone has begun).

The RTP_STARTED_EVENT message will generally come up at the same time as the established event. It also occurs when a call is retrieved from being on hold, and when the transfer or conference operations are completed.

There is no guarantee of order of the RTP started events in relationship to the established and retrieved events. The RTP started events may occur before or after the established event.

Table 5-25 defines the format of the RTP_STARTED_EVENT message:

Table 5-25 RTP_STARTED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 116.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4
ClientPort	The TCP/IP port number of the CTI Client connection	UINT	4
Direction	The direction of the event. One of the following values: 0: Input; 1: Output; 2: Bi-directional.	USHORT	2
RTPType	The type of the event. One of the following values: 0: Audio; 1: Video; 2: Data.	USHORT	2
BitRate	The media bit rate, used for g.723 payload only	UINT	4
EchoCancellation	on/off	USHORT	2
PacketSize	In milliseconds	UINT	4
PayloadType	The audio codec type	USHORT	2
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-25 RTP_STARTED_EVENT Message Format (continued)

Connection DeviceID	The identifier of the connection between the call and the device.	STRING	64
ClientAddress	The IP address of the CTI client.	STRING	16
AgentID (optional)	The agent's ACD login ID.	STRING	12
AgentExtension (optional)	The agent's ACD teleset extension	STRING	16
AgentInstrument (optional)	The agent's ACD instrument number	STRING	64
SendingAddress	The IP Address that the client is sending the RTP stream to.	STRING	16
SendingPort	The UDP port number that the client is sending the RTP Stream to.	UINT	4
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
SendingAddressIPV6 (not supported by Unified CCE)	The IP Address to which the client is sending the RTP stream. Where supported this may replace SendingAddress; one but not both may be present.	STRING	16
Maximum message size (including header)			224

RTP_STOPPED_EVENT

The RTP_STOPPED_EVENT message indicates that an RTP media has been stopped. There are two media streams for audio media so there will be two RTP Stopped events, one indicating the input has started (i.e. the phone is not listening) and the other that the output has started (i.e. the outgoing media from the agent phone has stopped).

The RTP_STOPPED_EVENT will be received when the call is placed on hold, and when the call disconnects.

Table 5-26 defines the format of the RTP_STOPPED_EVENT message:

Table 5-26 RTP_STOPPED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 117.	MHDR	8
MonitorID	The Monitor ID of the device or call monitor that caused this message to be sent to the client, or zero if there is no monitor associated with the event (All Events Service).	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the device is located.	UINT	4
ClientPort	The TCP/IP port number of the CTI Client connection that was closed.	UINT	4

Table 5-26 RTP_STOPPED_EVENT Message Format (continued)

Direction	The direction of the event. One of the following values: 0: Input; 1: Output; 2: Bi-directional.	USHORT	2
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field	USHORT	2
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the device.	STRING	64
ClientAddress	The IP address of the CTI client.	STRING	16
AgentID (optional)	The agent's ACD login ID.	STRING	12
AgentExtension (optional)	The agent's ACD teleset extension	STRING	16
AgentInstrument (optional)	The agent's ACD instrument number	STRING	64
SendingAddress	The IP Address that the client is sending the RTP stream to.	STRING	16
SendingPort	The UDP port number that the client is sending the RTP Stream to.	UINT	4
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
SendingAddressIPV6 (not supported by Unified CCE)	The IP Address to which the client is sending the RTP stream. Where supported this may replace SendingAddress; one but not both may be present.	STRING	16
Maximum message size (including header)			210

All Events Service

The All Events service is conceptually similar to the Client Events service, and uses many of the same messages. Unlike the Client Events service, however, the CTI client that has been granted All Events service is associated with a CTI Bridge application (see Simplex/Duplex Configuration, page 1-4). Such a CTI Client receives messages for all call events, not just those associated with a specific teleset. Also,

because there is no specific teleset association, this CTI client may receive call events that occur before any agent has been chosen by the peripheral for the call. The following messages describe these additional events. Table 5-27 lists the All Events service messages.

Table 5-27 All Events Service Messages

Message	When Sent to CTI Client
CALL_DELIVERED_EVENT	When an inbound ACD trunk is seized.
CALL_TRANSLATION_ ROUTE_ EVENT	When a call is routed to a peripheral monitored by the PG via a translation route.

CALL_DELIVERED_EVENT

In addition to the Client Events service CALL_DELIVERED_EVENT message, a CTI client with the All Events service may also receive a CALL_DELIVERED_EVENT message when an inbound ACD trunk is seized. The same message format (Table 5-6) is used in both cases; the LocalConnectionState field distinguishes between the two cases. In this case, the LocalConnectionState is set to LCS_INITIATE (see Table 6-8).

CALL_TRANSLATION_ROUTE_EVENT

The CTI Server sends a CALL_TRANSLATION_ROUTE_EVENT message to the CTI client when a call is routed to a peripheral monitored by the PG via a translation route. The message contains the call context data that will be assigned to the call after it arrives at the peripheral. The CALL_TRANSLATION_ROUTE_EVENT message is defined in Table 5-28.

Table 5-28 CALL_TRANSLATION_ROUTE_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 22.	MHDR	8
NumNamedVariables	The number of Named Variable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
DNIS	The DNIS of the expected call.	STRING	32
DialedNumber (optional)	The number dialed.	STRING	40
CallerEnteredDigits (optional)	The digits entered by the caller in response to VRU prompting.	STRING	40

Table 5-28 CALL_TRANSLATION_ROUTE_EVENT Message Format (continued)

RouterCallKeyDay	Together with the RouterCallKey CallID field forms the unique 64-bit key for locating this call's records in the Unified CCE.	UINT	4
RouterCallKeyCallID	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
RouterCallKey SequenceNumber	Together with RouterCallKeyDay and RouterCallKeyCallID fields forms the TaskID	UINT	4
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
Maximum message size (including header):			3245

Peripheral Monitor Service

Peripheral Monitor service is similar to All Events service, and uses many of the same messages. Unlike All Events service, however, the CTI client that has been granted Peripheral Monitor service must specify for which devices and/or calls it wishes to receive events. The CTI client does this by establishing a separate monitor for each device (Trunk, Trunk Group, or Agent Device) or call. The CTI client can add or remove monitors at any time after it opens the session without closing and re-opening the session or affecting any other established monitors. When a Peripheral Monitor client has multiple monitors that are relevant to an event message, the client receives a corresponding number of event messages. The MonitorID in each event message indicates which monitor is associated with that message. Peripheral Monitor service clients also receive the CALL_TRANSLATION_ROUTE event described in Table 5-28.

Monitors are not preserved across CTI Server failures or client session failures. All monitors that a CTI client creates are automatically terminated when the session is terminated. In addition, call monitors are automatically terminated when the corresponding call ends. CTI clients must re-create monitors when opening a new CTI session following a failure or loss of connection. No messages are received for any events that may have occurred during the intervening time interval.

Table 5-29 lists the Peripheral Monitor service messages.

Table 5-29 Peripheral Monitor Service Messages

Message	When Sent to CTI Client
MONITOR_START_REQ	When a new monitor is created for a call or device.

Table 5-29 Peripheral Monitor Service Messages

MONITOR_STOP_REQ	When a call or device monitor is terminated.
CHANGE_MONITOR_MASK_ REQ	When a call and agent state event mask is changed.

MONITOR_START_REQ

Use this message to create a new monitor for the given call or device.

Figure 5-2 depicts the Monitor Start message flow. The MONITOR_START_REQ and MONITOR_START_CONF messages are defined in Table 5-30 and Table 5-31.

Figure 5-2 Monitor Start Message Flow

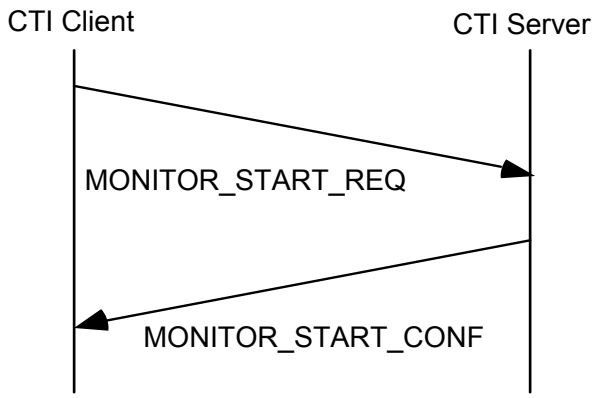


Table 5-30 MONITOR_START_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 93.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call or device to be monitored is located.	UINT	4
Connection CallID	The Call ID value of the call to be monitored. Set this field to zero when creating a monitor for a device.	UINT	4
CallMsgMask	A bitwise combination of the Unsolicited Call Event Message Masks listed in that the CTI client wishes to receive from this monitor.	UINT	4
AgentStateMask	A bitwise combination of Agent State Masks listed in Table 6-5 that the CTI client wishes to receive from this monitor.	UINT	4

Table 5-30 MONITOR_START_REQ Message Format (continued)

Connection DeviceIDType	Indicates the type of the device identifier supplied in the ConnectionDeviceID floating field (Table 6-13) when creating a monitor for a call. Set this field to CONNECTION_ID_NONE when creating a monitor for a device.	USHORT	2
MonitoredDeviceType	Indicates the type of the device identifier supplied in the MonitoredDeviceID floating field (Table 6-11) when creating a monitor for a device. Set this field to DEVID_NONE when creating a monitor for a call.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
ConnectionDeviceID (required for call monitor)	The device identifier of the device associated with the connection.	STRING	64
MonitoredDevice ID (required for device monitor)	The device identifier of the device to be monitored.	STRING	64
Maximum message size (including header):			164

When the requested device or call monitor has been created, the CTI Server responds to the CTI client with the MONITOR_START_CONF message.

Table 5-31 MONITOR_START_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 94.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
MonitorID	The Monitor ID of the new device or call monitor.	UINT	4
Maximum message size (including header):			16

MONITOR_STOP_REQ

Use this message to terminate a call or device monitor. Figure 5-3 depicts the Monitor Stop message flow. The MONITOR_STOP_REQ and MONITOR_STOP_CONF messages are defined in Table 5-32 and Table 5-33.

Figure 5-3 Monitor Stop Message Flow

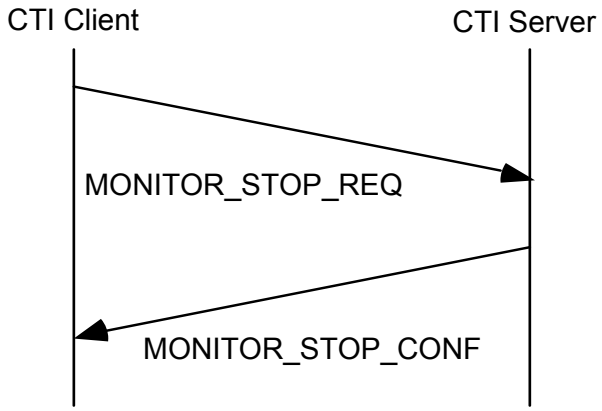


Table 5-32 MONITOR_STOP_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 95.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
MonitorID	The Monitor ID of the device or call monitor to be terminated.	UINT	4
Maximum message size (including header):			16

When the requested device or call monitor has been terminated, the CTI Server responds to the CTI client with the MONITOR_STOP_CONF message:

Table 5-33 MONITOR_STOP_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 96.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

CHANGE_MONITOR_MASK_REQ

Use this message to change the call and agent state change event masks used to filter messages from the given call or device monitor. Figure 5-4 depicts the Change Monitor Mask message flow. The CHANGE_MONITOR_MASK_REQ and CHANGE_MONITOR_MASK_CONF messages are defined in Table 5-34 and Table 5-35.

Figure 5-4 Change Monitor Mask Message Flow

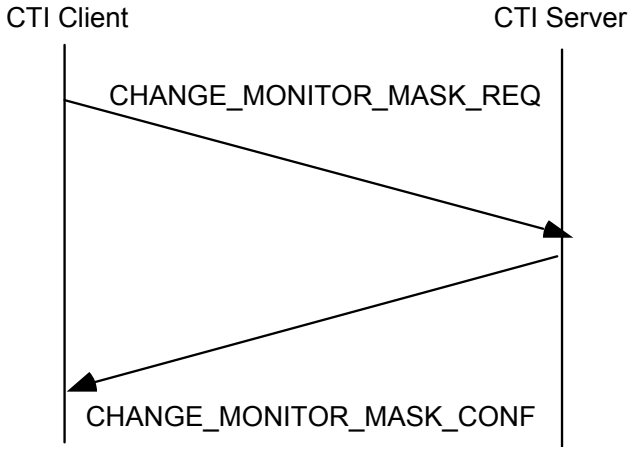


Table 5-34 CHANGE_MONITOR_MASK_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 97.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
MonitorID	The Monitor ID of the device or call monitor whose call and agent state change event masks are to be changed.	UINT	4
CallMsgMask	A bitwise combination of the Unsolicited Call Event Message Masks in that the CTI client wishes to receive from this monitor.	UINT	4
AgentStateMask	A bitwise combination of Agent State Masks in Table 6-5 that the CTI client wishes to receive from this monitor.	UINT	4
Maximum message size (including header)			24

When the requested device or call monitor masks have been updated, the CTI Server responds to the CTI client with the CHANGE_MONITOR_MASK_CONF message.

Table 5-35 CHANGE_MONITOR_MASK_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 98.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

Client Monitor Service

The CTI client that has been granted Client Monitor service receives notifications when any other CTI client session is opened or closed. The client may then monitor the activity of any other CTI client session.

Table 5-36 lists the Client Monitor service messages that provide these notifications and monitor other CTI client sessions.

Table 5-36 Client Monitor Service Messages

Message	When Sent to CTI Client
CLIENT_SESSION_OPENED_ EVENT	When a new client session opens.
CLIENT_SESSION_CLOSED_ EVENT	When a client session closes.
SESSION_MONITOR_START_ REQ	When monitoring of a client session starts.
SESSION_MONITOR_STOP_ REQ	When monitoring of a client session ends.

CLIENT_SESSION_OPENED_EVENT

This message indicates that a new CTI client session has been opened. One of these messages is sent for each existing CTI client session to the newly opened session, as if those CTI clients had just opened their sessions. Table 5-37 defines the format of the CLIENT_SESSION_OPENED_EVENT message.

Table 5-37 CLIENT_SESSION_OPENED_EVENT Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 99.	MHDR	8
SessionID	A value that uniquely identifies the newly opened CTI session.	UINT	4
PeripheralID	If the session was opened for Client Events Service, this field contains the PeripheralID of the ACD specified by the opening client. Otherwise this field contains the special value NULL_ PERIPHERAL_ID.	UINT	4
ServicesGranted	A bitwise combination of the CTI Services listed in Table 6-30 that the opening client has been granted.	UINT	4
CallMsgMask	A bitwise combination of Unsolicited Call Event Message Masks that were specified by the opening client.	UINT	4
AgentStateMask	A bitwise combination of Agent State Masks in Table 6-5 that were specified by the opening client.	UINT	4
ClientPort	The TCP/IP port number of the opening CTI client connection.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ClientAddress	The IP address of the opening CTI client.	STRING	16
ClientID	The ClientID of the opening CTI client.	STRING	64
ClientSignature	The ClientSignature of the opening CTI client.	STRING	64
AgentExtension (optional)	The AgentExtension specified by the opening client, if any.	STRING	16
AgentID (optional)	The AgentID specified by the opening client, if any.	STRING	12
AgentInstrument (optional)	The AgentInstrument specified by the opening client, if any.	STRING	64
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header):			280

CLIENT_SESSION_CLOSED_EVENT

This message indicates that a CTI client session has been terminated. Table 5-38 defines the format of the CLIENT_SESSION_CLOSED_EVENT message.

Table 5-38 CLIENT_SESSION_CLOSED_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 100.	MHDR	8
SessionID	A value that uniquely identified the CTI session that was closed.	UINT	4
PeripheralID	If the session was opened for Client Events Service, this field contains the peripheral ID of the ACD specified by the other client when the session was opened. Otherwise this field contains the special value NULL_ PERIPHERAL_ID.	UINT	4
Status	A status code indicating the reason for termination of the session.	UINT	4
ClientPort	The TCP/IP port number of the opening CTI client connection.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ClientAddress	The IP address of the other CTI client.	STRING	16
ClientID	The ClientID of the other CTI client.	STRING	64
ClientSignature	The ClientSignature of the other CTI client.	STRING	64
AgentExtension (optional)	The AgentExtension specified by the other CTI client when the session was opened, if any.	STRING	16
AgentID (optional)	The AgentID specified by the other CTI client when the session was opened, if any.	STRING	12
AgentInstrument (optional)	The AgentInstrument specified by the other CTI client when the session was opened, if any.	STRING	64
ClientAddressIP V6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header):			272

SESSION_MONITOR_START_REQ

Use this message to initiate monitoring of the given CTI client session. Figure 5-5 depicts the Session Monitor Start message flow. The SESSION_MONITOR_START_REQ and SESSION_MONITOR_START_CONF messages are defined in Table 5-39 and Table 5-40.

Figure 5-5 Session Monitor Start Message Flow

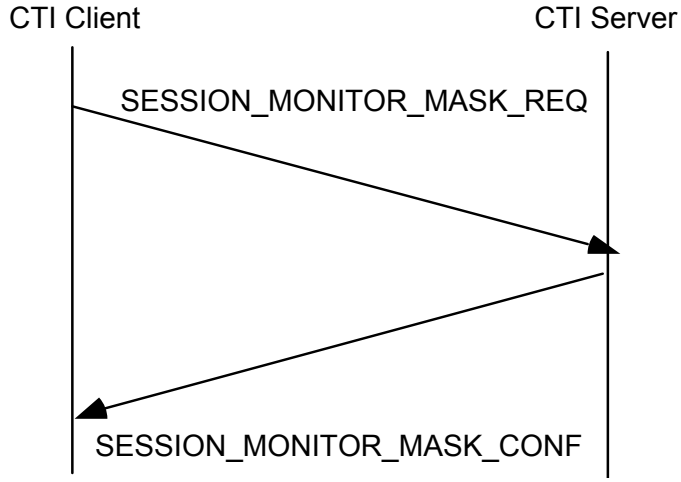


Table 5-39 SESSION_MONITOR_START_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType =101.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
SessionID	A value that uniquely identifies the CTI session to be monitored.	UINT	4
Maximum message size (including header):			16

When the requested session monitor has been created, the CTI Server responds to the CTI client with the SESSION_MONITOR_START_CONF message.

Table 5-40 SESSION_MONITOR_START_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 102.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
MonitorID	The Monitor ID of the CTI client session monitor that was created.	UINT	4
Maximum message size (including header):			16

SESSION_MONITOR_STOP_REQ

Use this message to terminate monitoring of a CTI client session. Figure 5-6 depicts the Session Monitor stop message flow. The SESSION_MONITOR_STOP_REQ and SESSION_MONITOR_STOP_CONF messages are defined in Table 5-41 and Table 5-42.

Figure 5-6 Session Monitor Stop Message Flow

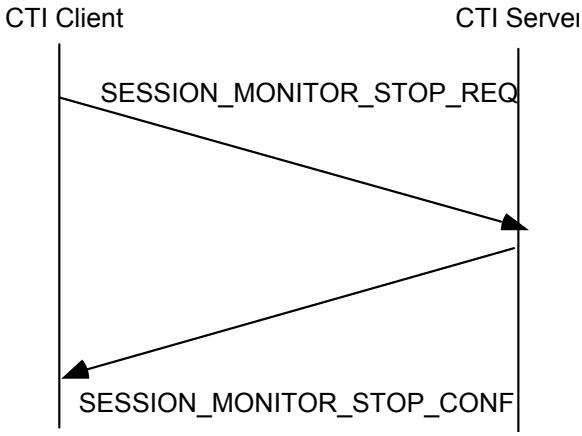


Table 5-41 SESSION_MONITOR_STOP_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType =103.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
MonitorID	The Monitor ID of the CTI client session monitor to be terminated.	UINT	4
Maximum message size (including header):			16

When the requested CTI client session monitor terminates, the CTI Server responds to the CTI client with the SESSION_MONITOR_STOP_CONF message:

Table 5-42 SESSION_MONITOR_STOP_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType =104.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

Supervisor Service

The Supervisor service requests supervisor services when the client opens a CTI session. CTI_SERVICE_SUPERVISOR service type will be used in addition to the existing Service types, and requires CTI_SERVICE_CLIENT_EVENTS to be specified as well.

Supervisor services rely on the configuration of Agent Teams in the Unified CCE. When an agent opens a session with CTI_SERVICE_SUPERVISOR service type requested, the CTIServer will check to see if the agent is configured as a supervisor. If the agent is a supervisor, the CTIServer will open the session and send the OPEN_CONF to the agent. Otherwise, the FAILURE_CONF message with the status code set to E_CTI_FUNCTION_NOT_AVAILABLE will be sent to the requesting client.

The CTI Client that has been granted Supervisor Service receives notifications whenever agent team clients request supervisor assistance or indicate that they are handling an emergency call. The following messages are used by Supervisor Service clients to provide these notifications and to perform agent supervisory functions.

Table 5-43 Supervisor Service Messages

Message	When Sent to CTI Client
SUPERVISE_CALL_REQ	When a supervisor requests to barge in or intercept a call.
EMERGENCY_CALL_EVENT	When the CTI Server is handling the current call as an emergency call.
AGENT_TEAM_CONFIG_ EVENT	When a supervisor adds or changes the list of agent team members.
LIST_AGENT_TEAM_REQ	When a supervisor requests a list of associated agent teams.
MONITOR_AGENT_TEAM_ START_REQ	When a supervisor starts monitoring an agent team.
MONITOR_AGENT_TEAM_ STOP_REQ	When a supervisor stops monitoring an agent team.

SUPERVISE_CALL_REQ

At any time, for monitoring quality of service, training, etc., a supervisor CTI client may send a SUPERVISE_CALL_REQ message to the CTI Server to request barge-in or interception of a call. At end of such call supervision, a supervisor CTI client should send SUPERVISE_CALL_REQ message with SUPERVISOR_CLEAR as the SupervisorAction value to disconnect the supervisor's device from the call.

The SUPERVISE_CALL_REQ message, defined in Table 5-44, allows a supervisor CTI Client to supervise an agent's call, either through barge-in or interception. The client may select a specific agent call connection, or may select an agent's currently active call by specifying only the agent:

Table 5-44 SUPERVISE_CALL_REQ Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 124.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
AgentConnection CallID	The Call ID value assigned to the call by the peripheral or Unified CCE. May contain the special value 0xffffffff when selecting the agent's currently active call.	UINT	4
SupervisorConnection CallID	The Call ID value of the supervisor. If there is no supervisor call, this field must be set to 0xffffffff.	UINT	4
AgentConnection DeviceIDType	Indicates the type of the connection identifier supplied in the AgentConnection DeviceID floating field (Table 6-13).	USHORT	2
SupervisorConnection DeviceIDType	Indicates the type of the connection identifier supplied in the SupervisorConnection DeviceID floating field (Table 6-13).	USHORT	2
SupervisoryAction	One of the values from Table 5-45 specifying the desired call supervision operation.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
AgentConnection DeviceID	The identifier of the connection of the agent call and the agent's device. Either ConnectionCallID and ConnectionDeviceID, or one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Supervisor Connection DeviceID	The identifier of the connection of the supervisor call and the supervisor's device. Either Connection CallID and Connection DeviceID, or one of Agent Extension, AgentID, or Agent Instrument must be provided.	STRING	64

Table 5-44 SUPERVISE_CALL_REQ Message Format (continued)

AgentExtension	The agent's ACD teleset extension. Either Connection CallID and ConnectionDevice ID, or one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. Either ConnectionCallID and ConnectionDeviceID, or one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. Either Connection CallID and ConnectionDevice ID, or one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Supervisor Instrument	The supervisor's ACD instrument number. This field is required for clients with ALL EVENTS or PERIPHERAL MONITOR service.	STRING	64
Maximum message size (including header)			326

Table 5-45 SupervisoryAction Values

SupervisoryAction	Description	Value
SUPERVISOR_CLEAR	The supervisor device is to be disconnected from the call.	0
SUPERVISOR_MONITOR	The supervisor device is to be connected to the call for silent monitoring. This allows the supervisor to hear all parties participating in the call. A field SilentMonitorWarning in the Agent_Desk_Settings table determines if a warning message box will be prompted on agent desktop when silent monitor starts. A field SilentMonitorASudible Indication in the Agent_Desk_Settings table determines if an audible click will be played to the call at beginning of the silent monitor.	1
SUPERVISOR_WHISPER	The supervisor device is to be connected to the call for training or whisper. This allows the supervisor to talks to the agent and the customer will not hear the call.	2
SUPERVISOR_BARGE_IN	The supervisor device is to be connected to the call as an active participant. This allows the supervisor to speak to all parties participating in the call, as in a conference.	3
SUPERVISOR_INTERCEPT	The supervisor device is to be connected to the call as an active participant and the agent connection will be dropped.	4

The CTI Server responds to the CTI Client with the SUPERVISE_CALL_CONF message:

Table 5-46 SUPERVISE_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 125.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDeviceIDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the agent device that is being supervised.	STRING	64
Maximum message size (including header)			84

EMERGENCY_CALL_REQ

The EMERGENCY_CALL_REQ message, defined in Table 5-47, indicates that a CTI Client is handling the indicated call as an emergency call:

Table 5-47 EMERGENCY_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 121.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value of the call that the agent needs assistance with. May contain the special value 0xffffffff when there is no related call.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			

Table 5-47 EMERGENCY_CALL_REQ Message Format (continued)

Field Name	Value	Data Type	Max. Size
ConnectionDevice ID	The identifier of the connection between the call and the agent's device.	STRING	64
AgentExtension	The agent's ACD teleset extension. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Maximum message size (including header)			186

The CTI Server responds to the CTI Client with the EMERGENCY_CALL_CONF message:

Table 5-48 EMERGENCY_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 122.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
ConnectionCallID	The Call ID value assigned to the resulting EmergencyAssist call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	Indicates the type of the teleset line (Table 6-14) given in the LineHandle field.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-48 EMERGENCY_CALL_CONF Message Format (continued)

ConnectionDevice ID	The identifier of the device connection associated with the new call.	STRING	64
Maximum message size (including header)			88

EMERGENCY_CALL_EVENT

The EMERGENCY_CALL_EVENT message, defined below, notifies bridge clients that an agent is handling the indicated call as an emergency call:

Table 5-49 EMERGENCY_CALL_EVENT Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 123.	MHDR	8
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
SessionID	The CTI client SessionID of the CTI client making the notification.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ConnectionDevice ID	The identifier of the connection between the call and the agent's device.	STRING	64
ClientID	The ClientID of the client making the notification.	STRING	64
ClientAddress	The IP address of the client making the notification.	STRING	16
AgentExtension	The agent's ACD teleset extension.	STRING	16
AgentID	The agent's ACD login ID.	STRING	12
AgentInstrument	The agent's ACD instrument number.	STRING	64
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header)			274

AGENT_TEAM_CONFIG_EVENT

Once a supervisor CTI client session is opened, the CTIServer sends one or more AGENT_TEAM_CONFIG_EVENT messages with the list of team members for that supervisor.

The CT IServer also sends out the AGENT_TEAM_CONFIG_EVENT when any change is made to the agent team configuration.

The AGENT_TEAM_CONFIG_EVENT message, defined in Table 5-50, contains the list of team members for a supervisor or changes to the team configuration.

Table 5-50 AGENT_TEAM_CONFIG_EVENT Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 128.	MHDR	8
PeripheralID	The PeripheralID of the ACD where the team is located.	UINT	4
TeamID	The agent team ID.	UINT	4
NumberOfAgents	The number of AgentID, AgentFlag, AgentState, and StateDuration fields present in the floating part of the message, up to a maximum of 64	USHORT	2
ConfigOperation	The type of agent team configuration change to perform. One of the following values: 0: Restore Permanent Configuration; 1: Add Agent; 2: Remove Agent.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
AgentTeamName	Name of the agent team.	STRING	32
AgentID	The AgentID of a member of the Agent Team. Or SupervisorID of the agent team. There may be more than one AgentID field in the messages (see NumberOfAgents).	STRING	12
AgentFlags	A set of flags indicating the attributes of the corresponding AgentID. Possible values are: 0x0001: Primary Supervisor; 0x0002: Temporary Agent; 0x0004: Supervisor. (0 flag is for regular agent) There may be more than one AgentFlag field in the message (see NumberOfAgents).	USHORT	2
AgentState	One of the values from Table 6-5 representing the current overall state of the associated agent.	USHORT	2
StateDuration	The number of seconds since the agent entered this state.	UINT	4
Maximum message size (including header)			1812

LIST_AGENT_TEAM_REQ

A CTI Supervisor Client could use the LIST_AGENT_TEAM_REQ message to obtain the list of associated agent teams. Once the list of agent teams is obtained, the supervisor could use MONITOR_AGENT_TEAM_START_REQ to start monitoring agent teams. The agent states of the agent team will be send to the requesting supervisor session until a MONITOR_AGENT_TEAM_STOP_REQ is received.

When any change is made to the agent team configuration, an AGENT_TEAM_CONFIG_EVENT will be sending out. If agent team and supervisor mapping are changed (add or remove), an AGENT_TEAM_CONFIG_EVENT will be sending out with AgentFlags set to 0x0004 for supervisor.

The LIST_AGENT_TEAM_REQ message, defined in Table 5-51, allows a CTI Supervisor Client to obtain the list of agent team that the supervisor can monitor. The list should be pre-configured in the Agent Team Supervisor Table.

Table 5-51 LIST_AGENT_TEAM_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 133.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
SupervisorID	Skill target ID of the requesting supervisor	UINT	4
Maximum message size (including header)			16

The LIST_AGENT_TEAM_CONF message, defined in Table 5-52, contains the list of agent teams that associated with the requesting supervisor.

Table 5-52 LIST_AGENT_TEAM_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 134.	MHDR	8
InvokeID	Same ID as the request message.	UINT	4
NumberOfAgent Teams	The number of TeamID present in the floating part of the message, up to a maximum of 64	USHORT	2
Segment Number	Indicates the segment number of this message	USHORT	2
More	Indicates if this message is the last confirmation. (More than one confirmations are sent out if more than 64 Agent Teams are associated with the supervisor) 0: last message; 1: more messages to follow;	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-52 LIST_AGENT_TEAM_CONF Message Format (continued)

TeamID	The agent team ID. There may be more than one TeamID field in the message (see NumberOf AgentTeams).	UINT	4
Maximum message size (including header)			402

MONITOR_AGENT_TEAM_START_REQ

The MONITOR_AGENT_TEAM_START_REQ message, defined in Table 5-53, allows a CTI Supervisor Client to start monitoring agent team.

Table 5-53 MONITOR_AGENT_TEAM _START_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 135.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
TeamID	The agent team ID.	UINT	4
Maximum message size (including header)			16

When the request has been received, the CTI Server responds to the CTI Client with the MONITOR_AGENT_TEAM_START_CONF message:

Table 5-54 MONITOR_AGENT_TEAM _START_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 136.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
MonitorID	The Monitor ID.	UINT	4
Maximum message size (including header)			16

MONITOR_AGENT_TEAM_STOP_REQ

The MONITOR_AGENT_TEAM_STOP_REQ message, defined in Table 5-54, allows a CTI Supervisor Client to stop monitoring agent teams.

Table 5-55 MONITOR_AGENT_TEAM_STOP_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 137.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4

Table 5-55 MONITOR_AGENT_TEAM_STOP_REQ Message Format (continued)

MonitorID	The Monitor ID.	UINT	4
Maximum message size (including header)			16

When the request has been received, the CTI Server responds to the CTI Client with the MONITOR_AGENT_TEAM_STOP_CONF message:

Table 5-56 MONITOR_AGENT_TEAM _STOP_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 138.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header)			12

Call Data Update Service

Unified CCE maintains a set of call variables for each call. Each variable is capable of storing a null terminated string of up to 40 characters (40 variable characters + null termination character = 41 bytes, STRING [41]). When Unified CCE pre-routes a call, it initializes each call variable to either a peripheral-determined value or a null string prior to executing the routing script. Post-routed calls initialize all call variables to peripheral-determined values.

Unified CCE can use the values of the call variables to make routing decisions. The variables may contain additional information about the caller, such as result of a host database query. While routing a call, the Unified CCE routing script may update one or more of the call variables.

A CTI client associated with the call may also set the call variables by using the SET_CALL_DATA_REQ message. When a call terminates, the final values of the call are recorded in the Unified CCE's central database and are available for use in historical reports. CTI clients with the Call Data Update service enabled may set an additional variable, CallWrapupData, for recording additional call information in the Unified CCE's central database. The CTI client has a small amount of time (configurable during Web setup, default is 2 minutes) after the completion of a call to provide the call wrapup data before the call termination record is logged in the Unified CCE.

When one or more call variables are determined by the peripheral, an Unified CCE Peripheral Configuration entry, *CallControlVariableMap*, determines if a CTI client may override the peripheral-determined setting of each call variable. You can set the value of CallControlVariableMap for each peripheral in Configure Unified CCE. For example, the setting "/CTI = ynnnyyyyyy" allows a CTI client to set call variable 1 and call variables 5 through 10 while preserving the peripheral-determined values of call variables 2 through 4.

Table 5-57 summarizes the Call Data Update service messages.

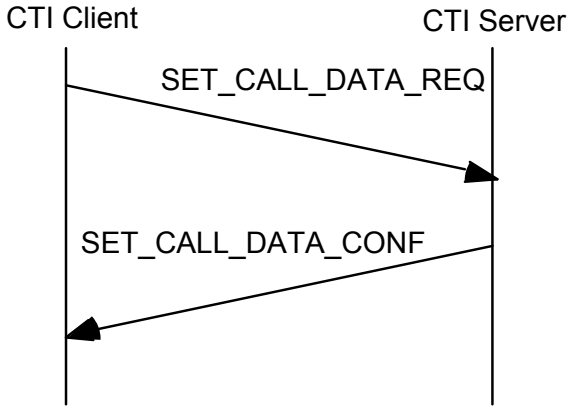
Table 5-57 Call Data Update Service Messages

Message	When Sent to CTI Server
SET_CALL_DATA_REQ	To set call variables and/or call wrapup data.
RELEASE_CALL_REQ	To indicate that you are finished with a call and that all call variable and call wrapup updates have been made.

SET_CALL_DATA_REQ

Send this message to the CTI Server to set one or more call variables and/or call wrapup data. The combination of ConnectionCallID, ConnectionDeviceIDType, and ConnectionDeviceID uniquely identify the call to be operated upon. Variables not provided in the message are not affected. Figure 5-7 depicts the Set Call Data message flow.

Figure 5-7 Set Call Data Message Flow



The SET_CALL_DATA_REQ and SET_CALL_DATA_CONF messages are defined in Table 5-58 and Table 5-59.

Table 5-58 SET_CALL_DATA_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 26.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4

Table 5-58 SET_CALL_DATA_REQ Message Format (continued)

NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
CallType	The general classification of the call type (Table 6-12).	USHORT	2
CalledParty Disposition	Indicates the disposition of called party	USHORT	2
CampaignID	Campaign ID for value that appears in the Agent Real Time table. Set to zero if not used.	UINT	4
QueryRuleID	Query rule ID for value that appears in the Agent Real Time table. Set to zero if not used.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the device.	STRING	64
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
CallerEnteredDigits (optional)	The digits entered by the caller in response to IVR prompting.	STRING	40
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
CustomerPhone Number (optional)	Customer phone number for value that appears in the Agent Real Time table.	STRING	20
CustomerAccount Number (optional)	Customer Account Number for value that appears in the Agent Real Time table.	STRING	32

Table 5-58 SET_CALL_DATA_REQ Message Format (continued)

RouterCallKeyDay (optional)	If specified, allows setting of the router call keyday.	UINT	4
RouterCallKey CallID	If specified, allows setting of theRouterCallKeyID.	UINT	4
RouterCallKey SequenceNumber	If specified, allows setting of the RouterCallKeySequenceNumber.	UINT	4
CallOriginated From	Dialer Only 'D'. Tags a call as being originated from the dialer.	UCHAR	1
Maximum message size (including header)			3363

When the requested call variables have been updated and the new values are guaranteed to remain set should the CTI session be abnormally terminated, the CTI Server responds to the CTI client that requested the update with the SET_CALL_DATA_CONF message:

Table 5-59 SET_CALL_DATA_CONF Message Format

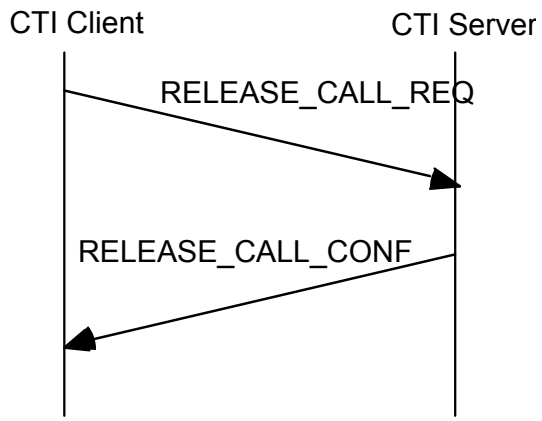
Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 27.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

RELEASE_CALL_REQ

Send this message to the CTI Server to indicate that you are finished with a call and that all call variable and call wrapup data updates have been made. This message does not disconnect the call. The combination of ConnectionCallID, ConnectionDeviceIDType, and ConnectionDeviceID uniquely identify the call to be operated upon. CTI clients with Call Data Update Service should use this message to let the call termination record be logged in the Unified CCE central database prior to the expiration of the call wrapup data timer (default value 2 minutes).

Figure 5-8 depicts the Release Call message flow.

Figure 5-8 Release Call Message Flow



The RELEASE_CALL_REQ and RELEASE_CALL_CONF messages are defined in Table 5-60 and Table 5-61.

Table 5-60 RELEASE_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 28.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
Connection DeviceIDType	The type of device ID in the ConnectionDevice ID floating field (Table 6-13).	USHORT	2
Connection CallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Byte Size**
Connection DeviceID	The device ID of the device associated with the connection.	STRING	64
Maximum message size (including header):			88

The CTI Server responds to the CTI client with the RELEASE_CALL_CONF message:

Table 5-61 RELEASE_CALL_CONF Message Format

Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 29.	MHDR	8

Table 5-61 RELEASE_CALL_CONF Message Format (continued)

InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

SET_DEVICE_ATTRIBUTES_REQ

This message is sent by a CTI Client to set the default service, skill group, and call type information associated with a calling device that is defined in the Unified CCE Dialer_Port_Map database table. The default attributes are initially assigned to all subsequent calls that originate from that device, although the service, skill group, and call type of any call may be modified during subsequent call handling. The SET_DEVICE_ATTRIBUTES_REQ and SET_DEVICE_ATTRIBUTES_CONF messages are defined in Table 5-62 and Table 5-63:

Table 5-62 SET_DEVICE_ATTRIBUTES_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 141.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ServiceNumber	The service that the call is attributed to, as known to the peripheral. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
ServiceID	The ServiceID of the service that the call is attributed to. May contain the special value NULL_SERVICE (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupNumber	The number of the agent SkillGroup the call is attributed to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available.Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the agent SkillGroup the call is attributed to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available.	UINT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available.	USHORT	2
CallType	The general classification of the call type (Table 6-12). May contain the special value NULL_CALLTYPE.	USHORT	2
CallingDeviceType	Indicates the type of the device identifier supplied in the CallingDeviceID floating field (Table 6-11).	USHORT	2

Table 5-62 SET_DEVICE_ATTRIBUTES_REQ Message Format (continued)

Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
CallingDeviceID (required)	The device identifier of the calling device.	STRING	64
Maximum message size (including header)			104

When the requested default settings have been updated the CTI Server responds to the CTI Client that requested the update with the SET_DEVICE_ATTRIBUTES_CONF message. A FAILURE_CONF message is returned if the provided Service or SkillGroup values are invalid, or if the CallingDevice is not configured in the Unified CCE Dialer_Port_Map database table.

Table 5-63 SET_DEVICE_ATTRIBUTES_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 142.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

Miscellaneous Service

The Miscellaneous service is provided to all connected CTI clients. This service consists of a variety of unsolicited event messages and request/response paired messages.

Table 5-64 summarizes the Miscellaneous service messages.

Table 5-64 Miscellaneous Service Messages

Message	When Sent by CTI Server
SYSTEM_EVENT	To report current PG status or to provide the CTI client with event data.
CLIENT_EVENT_REPORT_REQ	To report significant events through the Unified CCE Alarm subsystem.
USER_MESSAGE_REQ	To send a message to a specified client, the client agent's supervisor, all clients in the client agent's team, or all clients connected to the CTI Server.
USER_MESSAGE_EVENT	To deliver a message that was sent from another CTI Server client.
QUERY_AGENT_STATISTICS_ REQ	To obtain the current call handling statistics for the client's agent.
QUERY_SKILL_GROUP_ STATISTICS_REQ	To obtain the current call handling statistics for one of the client agent's skill groups

Table 5-64 Miscellaneous Service Messages (continued)

REGISTER_VARIABLES_REQ	To allow a CTI Client to register the call context variables that it will use.
SET_APP_DATA_REQ	Sent by CTI Client when it sets one of more application variables.
START_RECORDING_REQ	Sent by CTI Client on requesting the CTI Server to start recording a call.
STOP_RECORDING_REQ	Sent by CTI Client on requesting the CTI Server to stop recording a call.
AGENT_DESK_SETTINGS_REQ	To obtain current agent desk settings.

SYSTEM_EVENT

System event messages include the current PG Status as well as data related to the specific event that has occurred. You can use the PG Status as a general indication of the operational health of the PG. Specific PG Status codes are shown in Table 6-6. Normally you need not be aware of any specific codes; a non-zero value indicates a component failure or data link outage that prevents normal CTI operations. The SYSTEM_EVENT message is defined in Table 5-65:

Table 5-65 SYSTEM_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 31.	MHDR	8
PGStatus	The current operational status of the Peripheral Gateway. A non-zero value indicates a component failure or communication outage that prevents normal CTI operations (Table 6-6).	UINT	4
ICMCentral ControllerTime	The current Central Controller date and time.	TIME	4
SystemEventID	A value that enumerates the specific system event that occurred (Table 6-2).	UINT	4
SystemEventArg1	An argument value specific to the system event being reported. Not used by all system events, see Table 6-2 for details.	UINT	4
SystemEventArg2	A second argument value specific to the system event being reported. Not used by all system events, see Table 6-2 for details.	UINT	4
SystemEventArg3	A third argument value specific to the system event being reported. Not used by all system events, see Table 6-2 for details.	UINT	4
EventDeviceType	Indicates the type of the device identifier supplied in the EventDeviceID floating field (Table 6-11). Should be DEVID_NONE if no floating field is provided	USHORT	2
Floating Part			

Table 5-65 SYSTEM_EVENT Message Format (continued)

Field Name	Value	Data Type	Max. Size
Text (optional)	A text message associated with the provided SystemEperiphventID.	STRING	255
EventDeviceID	A text value of the device ID if reported. Initially only used by Unified CCX for an SYS_DEVICE_IN_SERVICE, and SYS_DEVICE_OUT_OF_ SERVICE message.	STRING	64
Maximum message size (including header):			289

CLIENT_EVENT_REPORT_REQ

Send the CLIENT_EVENT_REPORT_REQ message, defined in Table 5-66, to report significant events through the Unified CCE Alarm subsystem. The Unified CCE Alarm subsystem allows simple textual event reports as well as an object-oriented model that tracks the current state of named objects. The Unified CCE Alarm subsystem can also forward these events as SNMP traps.

A CTI client that elects to report events with named objects should initialize the objects in the Unified CCE Alarm subsystem soon after establishing its session with the CTI Server by reporting the current state of each named object. The object name given uniquely identifies the alarm object. Therefore, CTI client applications that wish to create multiple instances of an alarm object must include some instance-identifying characters (such as ClientID or ACD extension) in the object name.

For example, if a CTI client “A” and a CTI client “B” both report events on an object named “C”, there will be one Unified CCE Alarm object “C” that is manipulated by both clients. If, on the other hand, the Client ID were included in the object name, then two Unified CCE Alarm objects would result; object “A:C” being manipulated by client “A” and object “B:C” being independently manipulated by client “B”.

Table 5-66 CLIENT_EVENT_REPORT_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 32.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
State	One of the following values indicating the seriousness of the event and the state of the named object, if present. 0: normal (green), 1: warning (yellow), 2: error (red).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ObjectName (optional)	The name of the Unified CCE Alarm object affected by this event. The object is created if it does not already exist.	STRING	128
Text	A text message associated with the event being reported.	STRING	255
Maximum message size (including header):			401

The CTI Server responds to the CTI client with the CLIENT_EVENT_REPORT_CONF message:

Table 5-67 CLIENT_EVENT_REPORT_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. Message Type = 33.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

USER_MESSAGE_REQ

The USER_MESSAGE_REQ message, defined in Table 5-68, allows a CTI Client to send a message to a specified client, the client agent's supervisor, all clients in the client agent's team, or all clients connected to the CTI Server.

Table 5-68 USER_MESSAGE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 107.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the agent indicated by Agent Extension, AgentID, or Agent Instrument is located. For clients with All Events or Peripheral Monitor service, this value must be provided if the Distribution field specifies DISTRIBUTE_TO_ SUPERVISOR or DISTRIBUTE_ TO_TEAM.	UINT	4
Distribution	One of the values from Table 5-69 specifying the desired distribution of this message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Byte Size**
ClientID (optional)	The clientid of the intended message recipient. Required if the distribution field specifies DISTRIBUTE_TO_ CLIENT.	STRING	64
AgentExtension	The agent's ACD teleset extension. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of Agent Extension, AgentID, or Agent Instrument must be provided if the Distribution field specifies DISTRIBUTE_TO_ SUPERVISOR or DISTRIBUTE_ TO_TEAM.	STRING	16
AgentID	The agent's ACD login ID. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided if the Distribution field specifies DISTRIBUTE_TO_ SUPERVISOR or DISTRIBUTE_ TO_TEAM.	STRING	12
AgentInstrument	The agent's ACD instrument number. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided if the Distribution field specifies DISTRIBUTE_TO_ SUPERVISOR or DISTRIBUTE_ TO_TEAM.	STRING	64
Text	The text of the message to be sent.	STRING	255
CTIOSCILClient ID	Unique ID for use by CTI OS to identify CIL Client	STRING	64
Maximum message size (including header):			439

Table 5-69 Message Distribution Values

Distribution Code	Description	Value
DISTRIBUTE_TO_ CLIENT	The message is to be sent to the client indicated by the ClientID field.	0
DISTRIBUTE_TO_ SUPERVISOR	The message is to be sent to the agent team supervisor.	1
DISTRIBUTE_TO_ TEAM	The message is to be sent to all clients in the same agent team.	2
DISTRIBUTE_TO_ ALL	The message is to be sent to all CTI Server clients.	3

The CTI Server responds to the CTI Client with the USER_MESSAGE_CONF message:

Table 5-70 USER_MESSAGE_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. Message Type = 108.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

USER_MESSAGE_EVENT

The USER_MESSAGE_EVENT message, defined in Table 5-71, delivers a message that was sent from another CTI Server client:

Table 5-71 USER_MESSAGE_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 109.	MHDR	8
ICMCentral ControllerTime	The current Central Controller date and time.	TIME	4
Distribution	One of the values from Table 5-69 specifying the desired distribution of this message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ClientID	The ClientID of the message sender.	STRING	64
Text	The text of the message to be sent.	STRING	255
Maximum message size (including header):			337

QUERY_AGENT_STATISTICS_REQ

The QUERY_AGENT_STATISTICS_REQ message, defined in Table 5-72, allows a CTI Client to obtain the current call handling statistics for the client's agent. To avoid impacting system performance, clients should not request agent statistics too frequently. Depending upon the needs of the client application, updating agent statistics after each call is handled my be appropriate.

Table 5-72 QUERY_AGENT_STATISTICS_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 112.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the agent is located.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentExtension	The agent's ACD teleset extension. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Maximum message size (including header)			114

The CTI Server responds to the CTI Client with the QUERY_AGENT_STATISTICS_CONF message. "Session" values represent statistics accumulated since the agent logged in. "Today" values represent statistics accumulated since midnight. Call counts and times are updated when any after-call work for the call is completed (calls currently in progress are not included in the statistics):

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 113.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the agent is located.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

AvailTime Session	Total time, in seconds, the agent was in the Available state for any skill group.	UINT	4
LoggedOnTime Session	Total time, in seconds, the agent has been logged on.	UINT	4
NotReadyTime Session	Total time, in seconds, the agent was in the Not Ready state for all skill groups.	UINT	4
ICMAvailable TimeSession	Total time, in seconds, the agent was in the Unified CCE Available state.	UINT	4
RoutableTime Session	Total time, in seconds, the agent was in the Routable state for all skill groups.	UINT	4
AgentOutCalls Session	Total number of completed outbound ACD calls made by agent.	UINT	4
AgentOutCalls TalkTimeSession	Total talk time, in seconds, for completed outbound ACD calls handled by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCalls Time Session	Total handle time, in seconds, for completed outbound ACD calls handled by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCalls Held Session	The total number of completed outbound ACD calls the agent has placed on hold at least once.	UINT	4
AgentOutCalls HeldTime Session	Total number of seconds outbound ACD calls were placed on hold.	UINT	4
HandledCalls Session	The number of inbound ACD calls handled by the agent.	UINT	4
HandledCalls TalkTime Session	Total talk time in seconds for Inbound ACD calls counted as handled by the agent. Includes hold time associated with the call.	UINT	4
HandledCalls AfterCall TimeSession	Total after call work time in seconds for Inbound ACD calls counted as handled by the agent.	UINT	4
HandledCalls Time Session	Total handle time, in seconds, for inbound ACD calls counted as handled by the agent. The time spent from the call being answered by the agent to the time the agent completed after call work time for the call. Includes hold time associated with the call.	UINT	4
IncomingCalls Held Session	The total number of completed inbound ACD calls the agent placed on hold at least once.	UINT	4
IncomingCalls HeldTime Session	Total number of seconds completed inbound ACD calls were placed on hold.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

InternalCallsSession	Number of internal calls initiated by the agent.	UINT	4
InternalCallsTimeSession	Number of seconds spent on internal calls initiated by the agent.	UINT	4
InternalCallsRcvdSession	Number of internal calls received by the agent.	UINT	4
InternalCallsRcvdTimeSession	Number of seconds spent on internal calls received by the agent.	UINT	4
InternalCallsHeldSession	The total number of internal calls the agent placed on hold at least once.	UINT	4
InternalCallsHeldTimeSession	Total number of seconds completed internal calls were placed on hold.	UINT	4
AutoOutCallsSession	Total number of AutoOut (predictive) calls completed by the agent.	UINT	4
AutoOutCallsTalkTime Session	Total talk time, in seconds, of AutoOut (predictive) calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsTime Session	Total handle time, in seconds, for AutoOut (predictive) calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsHeld Session	The total number of completed AutoOut (predictive) calls the agent has placed on hold at least once.	UINT	4
AutoOutCallsHeldTimeSession	Total number of seconds AutoOut (predictive) calls were placed on hold.	UINT	4
PreviewCallsSession	Total number of outbound Preview calls completed by the agent.	UINT	4
PreviewCallsTalkTime Session	Total talk time, in seconds, of outbound Preview calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsTimeSession	Total handle time, in seconds, outbound Preview calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

PreviewCalls HeldSession	The total number of completed outbound Preview calls the agent has placed on hold at least once.	UINT	4
PreviewCalls HeldTime Session	Total number of seconds outbound Preview calls were placed on hold.	UINT	4
Reservation CallsSession	Total number of agent reservation calls completed by the agent.	UINT	4
Reservation CallsTalk TimeSession	Total talk time, in seconds, of agent reservation calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
Reservation CallsTime Session	Total handle time, in seconds, agent reservation calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
Reservation CallsHeld Session	The total number of completed agent reservation calls the agent has placed on hold at least once.	UINT	4
Reservation CallsHeld TimeSession	Total number of seconds agent reservation calls were placed on hold.	UINT	4
BargeInCalls Session	Total number of supervisor call barge-ins completed.	UINT	4
InterceptCalls Session	Total number of supervisor call intercepts completed.	UINT	4
MonitorCalls Session	Total number of supervisor call monitors completed.	UINT	4
WhisperCalls Session	Total number of supervisor whisper calls completed.	UINT	4
EmergencyCalls Session	Total number of emergency calls.	UINT	4
AvailTimeToday	Total time, in seconds, the agent was in the Available state for any skill group.	UINT	4
LoggedOnTime Today	Total time, in seconds, the agent has been logged on.	UINT	4
NotReadyTime Today	Total time, in seconds, the agent was in the Not Ready state for all skill groups.	UINT	4
ICMAvailable TimeToday	Total time, in seconds, the agent was in the Unified CCE Available state.	UINT	4
RoutableTime Today	Total time, in seconds, the agent was in the Routable state for all skill groups.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

AgentOutCalls Today	Total number of completed outbound ACD calls made by agent.	UINT	4
AgentOutCalls TalkTime Today	Total talk time, in seconds, for completed outbound ACD calls handled by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCalls Time Today	Total handle time, in seconds, for completed outbound ACD calls handled by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCalls HeldToday	The total number of completed outbound ACD calls the agent has placed on hold at least once.	UINT	4
AgentOutCalls HeldTime Today	Total number of seconds outbound ACD calls were placed on hold.	UINT	4
HandledCalls Today	The number of inbound ACD calls handled by the agent.	UINT	4
HandledCalls TalkTime Today	Total talk time in seconds for Inbound ACD calls counted as handled by the agent. Includes hold time associated with the call.	UINT	4
HandledCalls AfterCall TimeToday	Total after call work time in seconds for Inbound ACD calls counted as handled by the agent.	UINT	4
HandledCalls TimeToday	Total handle time, in seconds, for inbound ACD calls counted as handled by the agent. The time spent from the call being answered by the agent to the time the agent completed after call work time for the call. Includes hold time associated with the call.	UINT	4
IncomingCalls HeldToday	The total number of completed inbound ACD calls the agent placed on hold at least once.	UINT	4
IncomingCalls HeldTime Today	Total number of seconds completed inbound ACD calls were placed on hold.	UINT	4
InternalCalls Today	Number of internal calls initiated by the agent.	UINT	4
InternalCalls TimeToday	Number of seconds spent on internal calls initiated by the agent.	UINT	4
InternalCalls RcvdToday	Number of internal calls received by the agent.	UINT	4
InternalCalls RcvdTime Today	Number of seconds spent on internal calls received by the agent.	UINT	4
InternalCalls HeldToday	The total number of internal calls the agent placed on hold at least once.	UINT	4
InternalCalls HeldTime Today	Total number of seconds completed internal calls were placed on hold.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

AutoOutCalls Today	Total number of AutoOut (predictive) calls completed by the agent.	UINT	4
AutoOutCalls TalkTime Today	Total talk time, in seconds, of AutoOut (predictive) calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCalls TimeToday	Total handle time, in seconds, for AutoOut (predictive) calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCalls HeldToday	The total number of completed AutoOut (predictive) calls the agent has placed on hold at least once.	UINT	4
AutoOutCalls HeldTime Today	Total number of seconds AutoOut (predictive) calls were placed on hold.	UINT	4
PreviewCalls Today	Total number of outbound Preview calls completed by the agent.	UINT	4
PreviewCalls TalkTimeToday	Total talk time, in seconds, of outbound Preview calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
PreviewCalls TimeToday	Total handle time, in seconds, outbound Preview calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
PreviewCalls HeldToday	The total number of completed outbound Preview calls the agent has placed on hold at least once.	UINT	4
PreviewCalls HeldTimeToday	Total number of seconds outbound Preview calls were placed on hold.	UINT	4
Reservation CallsToday	Total number of agent reservation calls completed by the agent.	UINT	4
Reservation CallsTalk TimeToday	Total talk time, in seconds, of agent reservation calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
Reservation CallsTimeToday	Total handle time, in seconds, agent reservation calls completed by the agent. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
Reservation CallsHeldToday	The total number of completed agent reservation calls the agent has placed on hold at least once.	UINT	4

Table 5-73 QUERY_AGENT_STATISTICS_CONF Message Format (continued)

Reservation CallsHeld TimeToday	Total number of seconds agent reservation calls were placed on hold.	UINT	4
BargeInCalls Today	Total number of supervisor call barge-ins completed.	UINT	4
InterceptCalls Today	Total number of supervisor call intercepts completed.	UINT	4
MonitorCalls Today	Total number of supervisor call monitors completed.	UINT	4
WhisperCalls Today	Total number of supervisor whisper calls completed.	UINT	4
EmergencyCalls Today	Total number of emergency calls.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentExtension	The agent's ACD teleset extension.	STRING	16
AgentID	The agent's ACD login ID.	STRING	12
AgentInstrument	The agent's ACD instrument number.	STRING	64
Maximum message size (including header)			434

QUERY_SKILL_GROUP_STATISTICS_REQ

The QUERY_SKILL_GROUP_STATISTICS_REQ message, defined in Table 5-74, allows a CTI Client to obtain the current call handling statistics for one of the client agent's skill groups. To avoid impacting system performance, clients should not request skill group statistics too frequently. Depending upon the needs of the client application, updating skill group statistics after each call is handled my be appropriate.

Table 5-74 QUERY_SKILL_GROUP_STATISTICS_REQ Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 114.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the skill group is located.	UINT	4
SkillGroupNumber	The number of the desired agent SkillGroup, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when SkillGroupID is supplied. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4

Table 5-74 QUERY_SKILL_GROUP_STATISTICS_REQ Message Format (continued)

SkillGroupID	The SkillGroupID of the desired agent SkillGroup. May contain the special value NULL_SKILL_GROUP (Table 6-3) when SkillGroupNumber is supplied.	UINT	4
Maximum message size (including header)			24

The CTI Server responds to the CTI Client with the QUERY_SKILL_GROUP_STATISTICS_CONF message. “ToHalf” values represent statistics accumulated in the current half hour period. “Today” values represent statistics accumulated since midnight. Call counts and times are updated when any after-call work for the call is completed (calls currently in progress are not included in the statistics):

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 115.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the skill group is located.	UINT	4
SkillGroupNumber	The number of the desired agent SkillGroup, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not available. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	UINT	4
SkillGroupID	The SkillGroupID of the desired agent SkillGroup. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not available.	UINT	4
Real-Time Statistics			
AgentsLoggedOn	Number of agents that are currently logged on to the skill group.	UINT	4
AgentsAvail	Number of agents for the skill group in Available state.	UINT	4
AgentsNotReady	Number of agents in the Not Ready state for the skill group.	UINT	4
AgentsReady	Number of agents in the Ready state for the skill group.	UINT	4
AgentsTalkingIn	Number of agents in the skill group currently talking on inbound calls.	UINT	4
AgentsTalkingOut	Number of agents in the skill group currently talking on outbound calls.	UINT	4
AgentsTalkingOther	Number of agents in the skill group currently talking on internal (not inbound or outbound) calls.	UINT	4
AgentsWorkNot Ready	Number of agents in the skill group in the Work Not Ready state.	UINT	4
AgentsWorkReady	Number of agents in the skill group in the Work Ready state.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

AgentsBusyOther	Number of agents currently busy with calls assigned to other skill groups.	UINT	4
AgentsReserved	Number of agents for the skill group currently in the Reserved state.	UINT	4
AgentsHold	Number of calls to the skill group currently on hold.	UINT	4
AgentsICM Available	Number of agents in the skill group currently in the Unified CCE Available state.	UINT	4
AgentsApplication Available	Number of agents in the skillgroup currently in the Application Available state.	UINT	4
AgentsTalkingAuto Out	Number of calls to the skill group currently talking on AutoOut (predictive) calls.	UINT	4
AgentsTalking Preview	Number of calls to the skill group currently talking on outbound Preview calls.	UINT	4
AgentsTalking Reservation	Number of calls to the skill group currently talking on agent reservation calls.	UINT	4
RouterCallsQNow	The number of calls currently queued by the Unified CCE call router for this skill group. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
LongestRouterCallQ Now	The queue time, in seconds, of the currently Unified CCE call router queued call that has been queued to the skill group the longest. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
CallsQNow	The number of calls currently queued to the skill group. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
CallsQTimeNow	The total queue time, in seconds, of calls currently queued to the skill group. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
LongestCallQNow	The queue time, in seconds, of the currently queued call that has been queued to the skill group the longest. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
AvailTimeTo5	Total seconds agents in the skill group were in the Available state.	UINT	4
LoggedOnTimeTo5	Total time, in seconds, agents in the skill group were logged on.	UINT	4
NotReadyTimeTo5	Total seconds agents in the skill group were in the Not Ready state.	UINT	4
AgentOutCallsTo5	Total number of completed outbound ACD calls made by agents in the skill group.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

AgentOutCallsTalk TimeTo5	Total talk time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsTime To5	Total handle time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsHeld To5	The total number of completed outbound ACD calls agents in the skill group have placed on hold at least once.	UINT	4
AgentOutCallsHeld TimeTo5	Total number of seconds outbound ACD calls were placed on hold by agents in the skill group.	UINT	4
HandledCallsTo5	The number of inbound ACD calls handled by agents in the skill group.	UINT	4
HandledCallsTalk TimeTo5	Total talk time in seconds for Inbound ACD calls counted as handled by agents in the skill group. Includes hold time associated with the call.	UINT	4
HandledCallsAfter CallTimeTo5	Total after call work time in seconds for Inbound ACD calls counted as handled by agents in the skill group.	UINT	4
HandledCallsTime To5	Total handle time, in seconds, for inbound ACD calls counted as handled by agents in the skill group. The time spent from the call being answered by the agent to the time the agent completed after call work time for the call. Includes hold time associated with the call.	UINT	4
IncomingCallsHeld To5	The total number of completed inbound ACD calls agents in the skill group placed on hold at least once.	UINT	4
IncomingCallsHeld TimeTo5	Total number of seconds completed inbound ACD calls were placed on hold by agents in the skill group.	UINT	4
InternalCallsRcvdTo 5	Number of internal calls received by agents in the skill group.	UINT	4
InternalCallsRcvd TimeTo5	Number of seconds spent on internal calls received by agents in the skill group.	UINT	4
InternalCallsHeldTo 5	The total number of internal calls agents in the skill group placed on hold at least once.	UINT	4
InternalCallsHeld TimeTo5	Total number of seconds completed internal calls were placed on hold by agents in the skill group.	UINT	4
AutoOutCallsTo5	Total number of AutoOut (predictive) calls completed by agents in the skill group.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

AutoOutCallsTalk TimeTo5	Total talk time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsTime To5	Total handle time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsHeld To5	The total number of completed AutoOut (predictive) calls that agents in the skill group have placed on hold at least once.	UINT	4
AutoOutCallsHeld TimeTo5	Total number of seconds AutoOut (predictive) calls were placed on hold by agents in the skill group.	UINT	4
PreviewCallsTo5	Total number of outbound Preview calls completed by agents in the skill group.	UINT	4
PreviewCallsTalk TimeTo5	Total talk time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsTime To5	Total handle time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsHeld To5	The total number of completed outbound Preview calls that agents in the skill group have placed on hold at least once.	UINT	4
PreviewCallsHeld TimeTo5	Total number of seconds outbound Preview calls were placed on hold by agents in the skill group.	UINT	4
ReservationCallsTo5	Total number of agent reservation calls completed by agents in the skill group.	UINT	4
ReservationCalls TalkTimeTo5	Total talk time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls TimeTo5	Total handle time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls HeldTo5	The total number of agent reservation calls that agents in the skill group have placed on hold at least once.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

ReservationCalls HeldTimeTo5	Total number of seconds agent reservation calls were placed on hold by agents in the skill group.	UINT	4
BargeInCallsTo5	Total number of supervisor call barge-ins completed in the skill group.	UINT	4
InterceptCallsTo5	Total number of supervisor call intercepts completed in the skill group.	UINT	4
MonitorCallsTo5	Total number of supervisor call monitors completed in the skill group.	UINT	4
WhisperCallsTo5	Total number of supervisor call whispers completed by agents in the skill group.	UINT	4
EmergencyCallsTo5	Total number of emergency calls completed by agents in the skill group.	UINT	4
CallsQ5	The number of calls queued to the skill group during the current five-minute. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
CallsQTime5	The total queue time, in seconds, of calls queued to the skill group during the current five-minute. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
LongestCallQ5	The longest queue time, in seconds, of all calls queued to the skill group during the current five-minute. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
AvailTimeToHalf	Total seconds agents in the skill group were in the Available state.	UINT	4
LoggedOnTime ToHalf	Total time, in seconds, agents in the skill group were logged on.	UINT	4
NotReadyTime ToHalf	Total seconds agents in the skill group were in the Not Ready state.	UINT	4
AgentOutCallsTo Half	Total number of completed outbound ACD calls made by agents in the skill group.	UINT	4
AgentOutCallsTalk TimeToHalf	Total talk time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsTime ToHalf	Total handle time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsHeld ToHalf	The total number of completed outbound ACD calls agents in the skill group have placed on hold at least once.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

AgentOutCallsHeld TimeToHalf	Total number of seconds outbound ACD calls were placed on hold by agents in the skill group.	UINT	4
HandledCallsToHalf	The number of inbound ACD calls handled by agents in the skill group.	UINT	4
HandledCallsTalk TimeToHalf	Total talk time in seconds for Inbound ACD calls counted as handled by agents in the skill group. Includes hold time associated with the call.	UINT	4
HandledCallsAfter CallTimeToHalf	Total after call work time in seconds for Inbound ACD calls counted as handled by agents in the skill group.	UINT	4
HandledCallsTime ToHalf	Total handle time, in seconds, for inbound ACD calls counted as handled by agents in the skill group. The time spent from the call being answered by the agent to the time the agent completed after call work time for the call. Includes hold time associated with the call.	UINT	4
IncomingCallsHeld ToHalf	The total number of completed inbound ACD calls agents in the skill group placed on hold at least once.	UINT	4
IncomingCallsHeld TimeToHalf	Total number of seconds completed inbound ACD calls were placed on hold by agents in the skill group.	UINT	4
InternalCallsRcvdTo Half	Number of internal calls received by agents in the skill group.	UINT	4
InternalCallsRcvd TimeToHalf	Number of seconds spent on internal calls received by agents in the skill group.	UINT	4
InternalCallsHeldTo Half	The total number of internal calls agents in the skill group placed on hold at least once.	UINT	4
InternalCallsHeld TimeToHalf	Total number of seconds completed internal calls were placed on hold by agents in the skill group.	UINT	4
AutoOutCallsToHalf	Total number of AutoOut (predictive) calls completed by agents in the skill group.	UINT	4
AutoOutCallsTalk TimeToHalf	Total talk time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsTime ToHalf	Total handle time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsHeld ToHalf	The total number of completed AutoOut (predictive) calls that agents in the skill group have placed on hold at least once.	UINT	4
AutoOutCallsHeld TimeToHalf	Total number of seconds AutoOut (predictive) calls were placed on hold by agents in the skill group.	UINT	4
PreviewCallsToHalf	Total number of outbound Preview calls completed by agents in the skill group.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

PreviewCallsTalk TimeToHalf	Total talk time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsTime ToHalf	Total handle time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsHeldTo Half	The total number of completed outbound Preview calls that agents in the skill group have placed on hold at least once.	UINT	4
PreviewCallsHeld TimeToHalf	Total number of seconds outbound Preview calls were placed on hold by agents in the skill group.	UINT	4
ReservationCallsTo Half	Total number of agent reservation calls completed by agents in the skill group.	UINT	4
ReservationCalls TalkTimeToHalf	Total talk time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls TimeToHalf	Total handle time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls HeldToHalf	The total number of agent reservation calls that agents in the skill group have placed on hold at least once.	UINT	4
ReservationCalls HeldTimeToHalf	Total number of seconds agent reservation calls were placed on hold by agents in the skill group.	UINT	4
BargeInCallsToHalf	Total number of supervisor call barge-ins completed in the skill group.	UINT	4
InterceptCallsTo Half	Total number of supervisor call intercepts completed in the skill group.	UINT	4
MonitorCallsToHalf	Total number of supervisor call monitors completed in the skill group.	UINT	4
WhisperCallsToHalf	Total number of supervisor call whispers completed by agents in the skill group.	UINT	4
EmergencyCalls ToHalf	Total number of emergency calls completed by agents in the skill group.	UINT	4
CallsQHalf	The number of calls queued to the skill group during the current half hour. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

CallsQTimeHalf	The total queue time, in seconds, of calls queued to the skill group during the current half hour. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
LongestCallQHalf	The longest queue time, in seconds, of all calls queued to the skill group during the current half hour. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
AvailTimeToday	Total seconds agents in the skill group were in the Available state.	UINT	4
LoggedOnTime Today	Total time, in seconds, agents in the skill group were logged on.	UINT	4
NotReadyTime Today	Total seconds agents in the skill group were in the Not Ready state.	UINT	4
AgentOutCalls Today	Total number of completed outbound ACD calls made by agents in the skill group.	UINT	4
AgentOutCallsTalk TimeToday	Total talk time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsTime Today	Total handle time, in seconds, for completed outbound ACD calls handled by agents in the skill group. The value includes the time spent from the call being initiated by the agent to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AgentOutCallsHeld Today	The total number of completed outbound ACD calls agents in the skill group have placed on hold at least once.	UINT	4
AgentOutCallsHeld TimeToday	Total number of seconds outbound ACD calls were placed on hold by agents in the skill group.	UINT	4
HandledCallsToday	The number of inbound ACD calls handled by agents in the skill group.	UINT	4
HandledCallsTalk TimeToday	Total talk time in seconds for Inbound ACD calls counted as handled by agents in the skill group. Includes hold time associated with the call.	UINT	4
HandledCallsAfter CallTimeToday	Total after call work time in seconds for Inbound ACD calls counted as handled by agents in the skill group.	UINT	4
HandledCallsTime Today	Total handle time, in seconds, for inbound ACD calls counted as handled by agents in the skill group. The time spent from the call being answered by the agent to the time the agent completed after call work time for the call. Includes hold time associated with the call.	UINT	4
IncomingCallsHeld Today	The total number of completed inbound ACD calls agents in the skill group placed on hold at least once.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

IncomingCallsHeld TimeToday	Total number of seconds completed inbound ACD calls were placed on hold by agents in the skill group.	UINT	4
InternalCallsRcvd Today	Number of internal calls received by agents in the skill group.	UINT	4
InternalCallsRcvd TimeToday	Number of seconds spent on internal calls received by agents in the skill group.	UINT	4
InternalCallsHeld Today	The total number of internal calls agents in the skill group placed on hold at least once.	UINT	4
InternalCallsHeld TimeToday	Total number of seconds completed internal calls were placed on hold by agents in the skill group.	UINT	4
AutoOutCallsToday	Total number of AutoOut (predictive) calls completed by agents in the skill group.	UINT	4
AutoOutCallsTalk TimeToday	Total talk time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsTime Today	Total handle time, in seconds, for completed AutoOut (predictive) calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
AutoOutCallsHeld Today	The total number of completed AutoOut (predictive) calls that agents in the skill group have placed on hold at least once.	UINT	4
AutoOutCallsHeld TimeToday	Total number of seconds AutoOut (predictive) calls were placed on hold by agents in the skill group.	UINT	4
PreviewCallsToday	Total number of outbound Preview calls completed by agents in the skill group.	UINT	4
PreviewCallsTalk TimeToday	Total talk time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsTime Today	Total handle time, in seconds, for completed outbound Preview calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
PreviewCallsHeld Today	The total number of completed outbound Preview calls that agents in the skill group have placed on hold at least once.	UINT	4
PreviewCallsHeld TimeToday	Total number of seconds outbound Preview calls were placed on hold by agents in the skill group.	UINT	4
ReservationCalls Today	Total number of agent reservation calls completed by agents in the skill group.	UINT	4

Table 5-75 QUERY_SKILL_GROUP_STATISTICS_CONF Message Format (continued)

ReservationCalls TalkTimeToday	Total talk time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent begins after call work for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls TimeToday	Total handle time, in seconds, for completed agent reservation calls handled by agents in the skill group. The value includes the time spent from the call being initiated to the time the agent completes after call work time for the call. The time includes hold time associated with the call.	UINT	4
ReservationCalls HeldToday	The total number of agent reservation calls that agents in the skill group have placed on hold at least once.	UINT	4
ReservationCalls HeldTimeToday	Total number of seconds agent reservation calls were placed on hold by agents in the skill group.	UINT	4
BargeInCallsToday	Total number of supervisor call barge-ins completed in the skill group.	UINT	4
InterceptCallsToday	Total number of supervisor call intercepts completed in the skill group.	UINT	4
MonitorCallsToday	Total number of supervisor call monitors completed in the skill group.	UINT	4
WhisperCallsToday	Total number of supervisor call whispers completed by agents in the skill group.	UINT	4
EmergencyCalls Today	Total number of emergency calls completed by agents in the skill group.	UINT	4
CallsQToday	The number of calls queued to the skill. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
CallsQTimeToday	The total queue time, in seconds, of calls queued to the skill group. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
LongestCallQToday	The longest queue time, in seconds, of all calls queued to the skill group. This field is set to 0xFFFFFFFF when this value is unknown or unavailable.	UINT	4
Maximum message size (including header)			592

REGISTER_VARIABLES_REQ

The REGISTER_VARIABLES_REQ message, defined in Table 5-76, allows a CTI Client to register the call context variables that it will use. By default, a CTI Client that does not explicitly register variables will receive all call and ECC variables. If a CTI Client does not want to receive all possible variables, it must explicitly register for each variable that it wants.

Table 5-76 REGISTER_VARIABLES_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 110.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
CallVariable Mask	A bitwise combination of Call Variable Masks listed in Table 5-77 corresponding to the call variables that the client wishes to receive.	USHORT	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamed Arrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NamedVariable (optional)	A variable name defined in the Unified CCE that the CTI Client wishes to use. There may be an arbitrary number of Named Variable and NamedArray fields in the message, up to a combined total limit of 2000 bytes. The variable value provided is ignored in this request. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	An array variable name defined in the Unified CCE that the CTI Client wishes to use. There may be an arbitrary number of Named Variable and NamedArray fields in the message, up to a combined total limit of 2000 bytes. The array index and value provided are ignored in this request. See Table 3-5 for the format of this field.	NAMED ARRAY	252
Maximum message size (including header):			2020

Table 5-77 lists the Call Variable masks.

Table 5-77 Call Variable Masks

Mask Name	Description	Value
CALL_VAR_1_MASK	CallVariable1	0x0001
CALL_VAR_2_MASK	CallVariable2	0x0002
CALL_VAR_3_MASK	CallVariable3	0x0004
CALL_VAR_4_MASK	CallVariable4	0x0008
CALL_VAR_5_MASK	CallVariable5	0x0010
CALL_VAR_6_MASK	CallVariable6	0x0020

Table 5-77 Call Variable Masks

Mask Name	Description	Value
CALL_VAR_7_MASK	CallVariable7	0x0040
CALL_VAR_8_MASK	CallVariable8	0x0080
CALL_VAR_9_MASK	CallVariable9	0x0100
CALL_VAR_10_MASK	CallVariable10	0x0200

If any specified Named Variable or Named Array is not currently configured in the Unified CCE, the CTI Server responds to the CTI Client with a FAILURE_CONF message. Otherwise, the CTI Server responds with a REGISTER_VARIABLES_CONF message (Table 5-78):

Table 5-78 REGISTER_VARIABLES_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 118.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
Maximum message size (including header):			12

If any specified Named Variable or Named Array is subsequently removed from the Unified CCE while the CTI Client session is still open, the CTI Server will send a FAILURE_EVENT message to the CTI Client.

SET_APP_DATA_REQ

This message is sent by a CTI Client to set one or more application variables. Variables not provided in the message are not affected. The SET_APP_DATA_REQ and SET_APP_DATA_CONF messages are defined in Table 5-79 and Table 5-80:

Table 5-79 SET_APP_DATA_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 129.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ApplicationPathID	The ID of the ApplicationPath which the variables belong.	INT	4
CallVariable1 (optional)	Call-related variable data.	STRING	41

Table 5-79 SET_APP_DATA_REQ Message Format (continued)

…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
FltCallTypeID (optional)	If present, sets the call type of the call.	UINT	4
PreCallInvokeID (optional)	If present, specifies the invoke of the PreCall related to this event.	UNIT	4
Maximum message size (including header)			442

When the requested call variables have been updated, and the new values are guaranteed to remain set in the event that the CTI session is abnormally terminated, the CTI Server responds to the CTI Client that requested the update with the SET_APP_DATA_CONF message:

Table 5-80 SET_APP_DATA_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 130.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header)			12

START_RECORDING_REQ

A CTI client may send a START_RECORDING_REQ message, requesting CTI server to start recording a call. Upon receiving the START_RECORDING_REQ, CTI server will try to find an available recording server to satisfy the recording request. The recording server will return START_RECORDING_CONF to CTI Server. Upon receipt of the START_RECORDING_CONF from the recording server, it will send START_RECORDING_CONF to the requesting CTI client.

Table 5-81 defines the format of the START_RECORDING_REQ message:

Table 5-81 START_RECORDING_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 147.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
ClientPort	The TCP/IP port number of the VoIP media stream.	UINT	4
BitRate	The media bit rate, used for g.723 payload only	UINT	4
PacketSize	In milliseconds	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Direction	The direction of the event. One of the following values: 0: Input; 1: Output; 2: Bi-directional.	USHORT	2
RTPType	The type of the event. One of the following values: 0: Audio; 1: Video; 2: Data.	USHORT	2
EchoCancellation	on/off	USHORT	2
PayloadType	The audio codec type	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the device.	STRING	64
ClientID (server only)	The ClientID of the CTI client requesting call recording, provided by CTIServer when this message is sent to a server application.	STRING	64
ClientAddress (server only)	The IP address of the CTI client requesting call recording, provided by CTIServer when this message is sent to a server application.	STRING	16

Table 5-81 START_RECORDING_REQ Message Format (continued)

AgentExtension	The agent's ACD teleset extension. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header)			280

The CTIServer forwards the START_RECORDING_REQ message to one or more servers applications that have registered the "Cisco:CallRecording" service. The recording server will return the START_RECORDING_CONF message when call recording has been activated. Upon receipt of the START_RECORDING_CONF, the CTI Server forwards the response to the requesting CTI Client:

Table 5-82 START_RECORDING _CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 148.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
SessionID	A value that uniquely identifies the server application session providing the call recording service that should be supplied by the client in the STOP_RECORDING_REQ message that terminates this recording. Server applications should set this field to 0xffffffff if the subsequent STOP_ RECORDING_REQ should be sent only to that server, or set to zero if the STOP_RECORDING_REQ may be sent to any registered server.	UINT	4
ServerData	An ID or other server value associated with this call recording that should be supplied by the client in the STOP_RECORDING_REQ message that terminates this recording.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-82 START_RECORDING _CONF Message Format (continued)

ClientID (client only)	The ClientID of the server application providing the call recording service, provided by CTIServer when this message is sent to a client application.	STRING	64
ClientAddress (client only)	The IP address of the server application providing the call recording service, provided by CTIServer when this message is sent to a client application.	STRING	16
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header)			100

STOP_RECORDING_REQ

Table 5-83 defines the format of the STOP_RECORDING_REQ message:

Table 5-83 STOP_RECORDING_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 149.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to this call by the peripheral or Unified CCE.	UINT	4
ClientPort	The TCP/IP port number of the VoIP media stream.	UINT	4
SessionID	A value that uniquely identifies the server application session providing the call recording service that was returned to the client in the START_RECORDING_CONF message that initiated this recording. A zero value indicates that the request may be directed to any registered server.	UINT	4
ServerData	The ID or other server value associated with this call recording that was returned to the client in the START_RECORDING_CONF message that initiated this recording.	UINT	4
ConnectionDeviceIDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Direction	The direction of the event. One of the following values: 0: Input; 1: Output; 2: Bi-directional.	USHORT	2
Floating Part			

Table 5-83 STOP_RECORDING_REQ Message Format (continued)

Field Name	Value	Data Type	Max. Size
ConnectionDevice ID	The identifier of the connection between the call and the device.	STRING	64
ClientID (server only)	The ClientID of the CTI client making this request, provided by CTIServer when this message is sent to a server application.	STRING	64
ClientAddress (server only)	The IP address of the CTI making this request, provided by CTIServer when this message is sent to a server application.	STRING	16
AgentExtension	The agent's ACD teleset extension. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For requesting clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header)			318

The CTIServer forwards the STOP_RECORDING_REQ message to the server application with session *SessionID* if non-zero, or if *SessionID* is zero to one or more server applications that have registered the "Cisco:CallRecording" service. The recording server will return the STOP_RECORDING_CONF message when call recording has been terminated. Upon receipt of the STOP_RECORDING_CONF, the CTI Server forwards the response to the requesting CTI Client:

Table 5-84 STOP_RECORDING_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType= 150.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**

Table 5-84 STOP_RECORDING_CONF Message Format (continued)

ClientID (client only)	The ClientID of the server application terminating the call recording service, provided by CTIServer when this message is sent to a client application.	STRING	64
ClientAddress (client only)	The IP address of the server application terminating the call recording service, provided by CTIServer when this message is sent to a client application.	STRING	16
ClientAddressIPV6 (not supported by Unified CCE)	The IP Address of the CTI client. Where supported this may replace ClientAddress; one but not both must be present.	STRING	16
Maximum message size (including header)			96

AGENT_DESK_SETTINGS_REQ

Table 5-85 defines the format of the AGENT_DESK_SETTINGS_REQ message:

Table 5-85 AGENT_DESK_SETTINGS_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 131.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentID (optional)	The agent's ACD login ID.	STRING	12
Maximum message size (including header)			30

The AGENT_DESK_SETTINGS_CONF message confirms receipt of the request and provides the query response:

Table 5-86 AGENT_DESK_SETTINGS_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 132.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4

Table 5-86 AGENT_DESK_SETTINGS_CONF Message Format (continued)

DeskSettingsMask	A bitwise combination of the Boolean desk setting Masks listed in following table.	UINT	4
WrapupData IncomingMode	Indicates whether the agent is allowed or required to enter wrap-up data after an inbound call: 0 = Required, 1 = Optional, 2 = Not allowed, 3 = Required With WrapupData.	UINT	4
WrapupData OutgoingMode	Indicates whether the agent is allowed or required to enter wrap-up data after an outbound call: 0 = Required, 1 = Optional, 2 = Not allowed.	UINT	4
LogoutNonActivity Time	Number of seconds on non-activity at the desktop after which the Unified CCE automatically logs out the agent	UINT	4
QualityRecording Rate	Indicates how frequently calls to the agent are recorded.	UINT	4
RingNoAnswer Time	Number of seconds a call may ring at the agent's station before being redirected.	UINT	4
SilentMonitor WarningMessage	Set when a warning message box will prompt on agent desktop when silent monitor starts.	UINT	4
SilentMonitor AudibleIndication	Set for an audio click at beginning of the silent monitor.	UINT	4
SupervisorAssist CallMethod	Set for Unified CCE PIM will create a blind conference call for supervisor assist request; otherwise will create consultative call.	UINT	4
EmergencyCall Method	Set for Unified CCE PIM will create a blind conference call for emergency call request; otherwise create a consultative call.	UINT	4
AutoRecordOn Emergency	Set for automatically record when emergency call request.	UINT	4
RecordingMode	Set for the recording request go through Unified CM/PIM.	UINT	4
WorkModeTimer	Auto Wrap-up time out.	UINT	4
RingNoAnswerDN	The dialed number identifier for new re-route destination in the case of ring no answer.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
DefaultDevicePort Address	Optional value to override the default port address for the agent telephony device.	STRING	32
Maximum message size (including header)			106

Table 5-87 Boolean Desk Settings Masks

Mask Name	Description	Value
DESK_AVAIL_AFTER_ INCOMING_MASK	Set for automatically consider the agent available after handling an incoming call	0x00000001

Table 5-87 Boolean Desk Settings Masks (continued)

DESK_AVAIL_AFTER_ OUTGOING_MASK	Set for automatically consider the agent available after handling an outbound call.	0x00000002
DESK_AUTO_ANSWER_ ENABLED_MASK	Set when calls to the agent are automatically answered.	0x00000004
DESK_IDLE_REASON_ REQUIRED_MASK	Set when the agent must enter a reason before entering the Idle state.	0x00000008
DESK_LOGOUT_REASON_ REQUIRED_MASK	Set when the agent must enter a reason before logging out.	0x00000010
DESK_SUPERVISOR_CALLS_ ALLOWED_MASK	Set when the agent can initiate supervisor assisted calls.	0x00000020
DESK_AGENT_TO_AGENT_ CALLS_ALLOWED	Set when calls to other agents are allowed.	0x00000040
DESK_OUTBOUND_ACCESS_I NTERNATIONAL_MASK	Set when the agent can initiate international calls.	0x00000080
DESK_OUTBOUND_ACCESS_ PUBLIC_NET_ MASK	Set when the agent can initiate calls through the public network.	0x00000100
DESK_OUTBOUND_ACCESS_ PRIVATE_NET_ MASK	Set when the agent can initiate calls through the private network.	0x00000200
DESK_OUTBOUND_ACCESS_ OPERATOR_ ASSISTED_MASK	Set when the agent can initiate operator assisted calls.	0x00000400
DESK_OUTBOUND_ACCESS_ PBX_MASK	Set when the agent can initiate outbound PBX calls.	0x00000800
DESK_NON_ACD_CALLS_ ALLOWED_MASK	Set when the agent can place or handle non-ACD calls.	0x00001000
DESK_AGENT_CAN_SELECT_ GROUP_MASK	Set when the agent can select which groups they are logged in to	0x00002000

Connection Monitor Service

The Connection Monitor service generates Unified CCE Alarm Events whenever a CTI client session that has been granted this service is established or is terminated. The alarm messages contain the ClientID, Client Signature, and IP address of the CTI client and indicate whether the session was established, terminated normally (i.e. a CTI client CLOSE_REQ), or terminated abnormally. You can use these alarms to notify administrative personnel when, for example, an unattended CTI Bridge Server client may need attention. This service has no CTI client messages.

Client Control Service

The Client Control service lets CTI client applications request changes to agent states, establish, answer, control, and terminate calls on behalf of a specified agent position, and manipulate telephone features associated with a desktop telephone device. The Client Control service permits a CTI client with Client

Events service to control the associated agent device and rejects attempts to control any other devices. CTI clients with All Events service may attempt to control any agent device (subject to any limitations imposed by the peripheral).

Client Control service messages that initiate new calls contain a boolean PostRoute field. When this field is set to TRUE, the value in the DialedNumber field of the message and the accumulated call context data is presented to Unified CCE *r* as a Post-*Route* request from the peripheral's routing client. The label returned in the Unified CCE's route response then initiates the call instead of the given dialed number. This enables the CTI client to harness the power of the Unified CCE to find the most appropriate destination for the call.

The Client Control service consists of paired request/response messages. The CTI client sends a request message for the desired control action, and the CTI Server response indicates the outcome of the request. Depending on the specifics of the request, 10 to 15 seconds may elapse before the CTI Server returns the response message.

Receipt of the request is indicated by the corresponding control action confirmation message (see Table 5-88). If a request is unsuccessful, the CTI server instead sends a CONTROL_FAILURE_CONF message to indicate that the requested control service function identified by the given InvokeID was unsuccessful. Table 5-88 defines the CONTROL_FAILURE_CONF message.

Table 5-88 CONTROL_FAILURE CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 35.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
FailureCode	One of the values from Table 6-1 specifying the reason that the request failed.	USHORT	2
PeripheralError Code	Peripheral-specific error data, if available. Zero otherwise.	UINT	4
Maximum message size (including header):			18

The CTI client may receive unsolicited call or agent event messages that are caused by the request before or after the request confirmation message.

Figure 5-9 illustrates the general Client Control message flow (using the messages to control agent state, described later in this section):

Figure 5-9 Client Control Service Message Flow

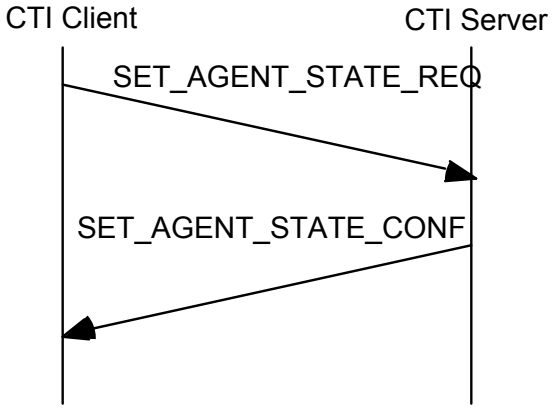


Table 5-89 summarizes the Client Control service messages.

Table 5-89 Client Contro Service Messages

Message	Action Requested	Server Response Message
QUERY_AGENT_STATE_ REQ	Retrieve the current state of an agent at a specified device.	QUERY_AGENT_STATE_ CONF
SET_AGENT_STATE_ REQ	Change an ACD agent's state.	SET_AGENT_STATE_ CONF
ALTERNATE_CALL_REQ	Place an active call on hold and then retrieve a previously held call or answer an alerting call at the same device.	ALTERNATE_CALL_CONF
ANSWER_CALL_REQ	Connect an alerting call at the device that is alerting.	ANSWER_CALL_CONF
CLEAR_CALL_REQ	Release all devices from the specified call.	CLEAR_CALL_CONF
CLEAR_CONNECTION_ REQ	Release a specific device connection from the designated call.	CLEAR_CONNECTION_ CONF
CONFERENCE_CALL_ REQ	Conference an existing held call with another active call.	CONFERENCE_CALL_ CONF
CONSULTATION_CALL_ REQ	Place an active call on hold and then make a new call.	CONSULTATION_CALL_ CONF
DEFLECT_CALL_REQ	Move an alerting call from a known device to another device.	DEFLECT_CALL_CONF
HOLD_CALL_REQ	Place an existing call connection into the held state.	HOLD_CALL_CONF
MAKE_CALL_REQ	Initiate a call between two devices.	MAKE_CALL_CONF
RECONNECT_CALL_ REQ	Clear an active call and retrieve an existing held call.	RECONNECT_CALL_CONF
RETRIEVE_CALL_REQ	Retrieve an existing held connection.	RETRIEVE_CALL_CONF
TRANSFER_CALL_REQ	Transfer a held call to another active call at the same device.	TRANSFER_CALL_CONF

Table 5-89 Client Contro Service Messages (continued)

QUERY_DEVICE_INFO_ REQ	Retrieve general information about a specified device.	QUERY_DEVICE_INFO_ CONF
SNAPSHOT_CALL_REQ	Retrieve information about a specified call.	SNAPSHOT_CALL_CONF
SNAPSHOT_DEVICE_ REQ	Retrieve information about a specified device.	SNAPSHOT_DEVICE_CONF
SEND_DTMF_SIGNAL_ REQ	Transmit a series of DTMF tones.	SEND_DTMF_SIGNAL_ CONF
SUPERVISOR_ASSIST_ REQ	Assistance from a supervisor.	SUPERVISOR_ASSIST_ CONF
EMERGENCY_CALL_ REQ	Emergency call to supervisor.	EMERGENCY_CALL_ CONF
BAD_CALL_REQ	Indicate a bad line condition.	BAD_CALL_CONF

QUERY_AGENT_STATE_REQ

Send this message to retrieve the current state of an agent at a specified device. The QUERY_AGENT_STATE_REQ message is defined in Table 5-90.

Table 5-90 QUERY_AGENT_STATE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 36.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4
MRDID	Media Routing Domain ID as configured in Unified CCE and the ARM client. MRDID and one of ICMAgentID, AgentExtension, AgentID, or AgentInstrument must be provided.	INT	4
ICMAgentID	The Skill Target ID, a unique agent identifier for Unified CCE. At least one of ICMAgentID, AgentExtension, AgentID, or AgentInstrument must be provided.	INT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentExtension	The agent's ACD teleset extension. At least one of ICMAgentID, AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. At least one of ICMAgentID, AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12

Table 5-90 QUERY_AGENT_STATE_REQ Message Format (continued)

AgentInstrument	The agent's ACD instrument number. At least one of ICMAgentID, AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Maximum message size (including header):			122

The CTI Server sends the QUERY_AGENT_STATE CONF message, defined in Table 5-91, as the query response.

Table 5-91 QUERY_AGENT_STATE_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 37.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
AgentState	One of the values from Table 6-5 representing the current state of the associated agent.	USHORT	2
NumSkillGroups	The number of Skill Groups that the agent is currently associated with, up to a maximum of 20. This value also indicates the number of SkillGroup Number, SkillGroupID, SkillGroup Priority, and Skill GroupState floating fields in the floating part of the message.	USHORT	2
MRDID	Media Routing Domain ID as configured in Unified CCE and the ARM client.	INT	4
NumTasks	The number of tasks currently assigned to the agent – this is the number that Unified CCE compares to the MaxTaskLimit to decide if the agent is available to be assigned additional tasks. This includes active tasks as well as those that are offered, paused, and in wrapup.	UINT	4
AgentMode	The mode that the agent will be in when the login completes. ROUTABLE = 0, NOT ROUTABLE = 1	USHORT	2
MaxTaskLimit	The maximum number of tasks that the agent can be simultaneously working on.	UINT	4
ICMAgentID	The Skill Target ID, a unique agent identifier for Unified CCE.	INT	4

Table 5-91 QUERY_AGENT_STATE_CONF Message Format (continued)

Agent Availability Status	An agent is *available* to work on a task in this Media Routing Domain if the agent meets all of these conditions: • The agent is routable for this Media Routing Domain • The agent is not in Not Ready state for skill groups in other Media Routing Domain • The agent is *temp routable*, meaning that the agent is not in Reserved, Active, Work-Ready, or Work-Not Ready state on a non-interruptible task in another Media Routing Domain. • The agent has not reached the maximum task limit for this Media Routing Domain An available agent is eligible to be assigned a task. Who can assign a task to the agent is determined by whether or not the agent is Routable. An agent is *ICMAvailable* in MRD X if he is available in X and Routable with respect to X. An agent is *ApplicationAvailable* in MRD X if he is available in X and not Routable with respect to X. Otherwise an agent is NotAvailable in MRD X. NOT AVAILABLE = 0, ICM AVAILABLE = 1, APPLICATION AVAILABLE=2	UINT	4

Floating Part

Field Name	Value	Data Type	Max Size
AgentID (optional)	The agent's ACD login ID, if an agent is logged into the specified device.	STRING	12
AgentExtension (optional)	The agent's ACD teleset extension, if an agent is logged into the specified device.	STRING	16
AgentInstrument (optional)	The agent's ACD instrument number, if an agent is logged into the specified device.	STRING	64
SkillGroup Number	The number of an agent Skill Group queue that the call has been added to, as known to the peripheral. May contain the special value NULL_SKILL_GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroupNumber field in the message (see NumSkillGroups).	UINT	4

Table 5-91 QUERY_AGENT_STATE_CONF Message Format (continued)

SkillGroupID	The SkillGroupID of the agent SkillGroup queue that the call has been added to. May contain the special value NULL_SKILL_ GROUP (Table 6-3) when not applicable or not available. There may be more than one SkillGroup ID field in the message (see Num SkillGroups). This field always immediately follows the corresponding SkillGroupNumber field.	UINT	4
SkillGroup Priority	The priority of the skill group, or 0 when skill group priority is not applicable or not available. There may be more than one SkillGroup Priority field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupID field.	USHORT	2
SkillGroupState	One of the values from representing the current state of the associated agent with respect to the skill group. There may be more than one SkillGroupState field in the message (see NumSkillGroups). This field always immediately follows the corresponding SkillGroupPriority field.	USHORT	2
Maximum message size (including header):			532

SET_AGENT_STATE_REQ

Use this message to change an ACD agent's state to one of the values defined in Table 6-5.

Note For Remote Agent login, use ";" to separate the instrument and agent phone number in the AgentInstrument field. Use RA_CALL_BY_CALL or RA_NAILED_CONNECTION in the AgentWorkMode field for the Remote Agent login mode.

The SET_AGENT_STATE_REQ message is defined in Table 5-92.

Table 5-92 SET_AGENT_STATE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 38.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4
AgentState	One of the values from Table 6-5 representing the desired state of the associated agent.	USHORT	2
AgentWorkMode	One of the values from Table 6-28 representing the desired work mode of the associated agent.	USHORT	2
NumSkillGroups	The number of SkillGroup Number and SkillGroup Priority fields in the floating part of the message, up to a maximum of 10.	USHORT	2
EventReasonCode	A peripheral-specific code indicating the reason for the state change.	USHORT	2
ForcedFlag	The CTI Server is requested to force this state change regardless of its validity. Used only with AGENT_STATE_LOGIN or AGENT_STATE_LOGOFF: 0 = FALSE 1 = TRUE 2 = Agent authentication only. No agent state change. Use with AGENT_STATE_LOGIN	UCHAR	1
AgentServiceReq	BitMask indicates what services the agent expects.	UINT	4

Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The agent's ACD instrument number	STRING	64

Table 5-92 SET_AGENT_STATE_REQ Message Format (continued)

AgentID (optional)	The agent's ACD login ID. This field is required when AgentState is AGENT_ STATE_LOGIN or AGENT_ STATE_LOGOUT.	STRING	12
AgentPassword (optional)	The password that allows an agent to log into or out of an agent SkillGroup. This field is required when AgentState is AGENT_STATE_LOGIN or AGENT_ STATE_LOGOUT.	STRING	64
PositionID (optional)	Required by some peripherals when AgentState is AGENT_ STATE_LOGIN.	STRING	12
SupervisorID (optional)	Required by some peripherals when AgentState is AGENT_ STATE_LOGIN.	STRING	12
SkillGroupNumber (optional)	When AgentState is AGENT_ STATE_LOGIN or AGENT_ STATE_LOGOUT, this field may be required by some peripherals and specifies the number (as known to the peripheral) of the agent Skill Group that the agent will be logged into or out of. There may be more than one Skill GroupNumber field in the message (see NumSkill Groups). If AgentState is AGENT_ STATE_LOGOUT and no SkillGroupNumber fields are provided, the agent will be logged out of ALL currently logged-in skill groups. Some ACDs ignore this field and/or use the ACD default; see the list immediately following Table 5-6.	INT	4
SkillGroupPriority	The priority of the skill group, or 0 when skill group priority is not applicable or not available. There may be more than one SkillGroup Priority field in the message (see NumSkill Groups). This field always immediately follows the corresponding SkillGroup Number field.	USHORT	2
Maximum message size (including header):			398

The CTI Server sends the SET_AGENT_STATE_CONF message, defined in Table 5-93, to confirm receipt of the request.

Table 5-93 SET_AGENT_STATE_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 39.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

ALTERNATE_CALL_REQ

Use this message to alternate between calls. This message requests the compound action of placing an active call on hold and then either retrieving a previously held call or answering an alerting call at the same device.

The ALTERNATE_CALL_REQ message is defined in Table 5-94.

Table 5-94 ALTERNATE_CALL_REQ Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 40.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the calls are located.	UINT	4
ActiveConnection CallID	The Call ID value assigned to the currently active call by the peripheral or Unified CCE.	UINT	4
OtherConnection CallID	The Call ID value assigned to the other call by the peripheral or Unified CCE.	UINT	4
ActiveConnection DeviceIDType	The type of device ID in the ActiveConnectionDeviceID floating field (Table 6-13).	USHORT	2
OtherConnection DeviceIDType	The type of device ID in the Other ConnectionDeviceID floating field (Table 6-13).	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
ActiveConnection DeviceID	The device ID of the device associated with the currently active connection.	STRING	64
OtherConnection Device ID	The device ID of the device associated with the other connection.	STRING	64

Table 5-94 ALTERNATE_CALL_REQ Message Format (continued)

AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			226

The CTI Server sends the ALTERNATE_CALL_CONF message, defined in Table 5-95, to confirm receipt of the request.

Table 5-95 ALTERNATE_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 41.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

ANSWER_CALL_REQ

Use this message upon delivery of an alerting call, to connect the alerting call at the device that is alerting. The ANSWER_CALL_REQ message is defined in Table 5-96.

Table 5-96 ANSWER_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 42.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE. May contain the special value 0xffffffff if the alerting Call ID value is not provided.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
AgentInstrument (optional)	The ACD instrument number of the instrument that should answer the call.	STRING	64
Maximum message size (including header):			154

The CTI Server sends the ANSWER_CALL_CONF message, defined in Table 5-97, to confirm receipt of the request.

Table 5-97 ANSWER_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. Message Type = 43.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

CLEAR_CALL_REQ

Use this message on hanging up a call, to release all devices from the specified call. The CLEAR_CALL_REQ message is defined in Table 5-98.

Table 5-98 CLEAR_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 44.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			154

The CTI Server sends the CLEAR_CALL_CONF message, defined in Table 5-99, to confirm receipt of the request.

Table 5-99 CLEAR_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. Message Type = 45.	MHDR	8

Table 5-99 CLEAR_CALL_CONF Message Format (continued)

InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

CLEAR_CONNECTION_REQ

Use this message on hanging up a specific phone, to release the device connection from the designated call. The CLEAR_CONNECTION_REQ message is defined in Table 5-100:

Table 5-100 CLEAR_CONNECTION_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 46.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
RequestingDevice IDType (optional)	Indicates the type of the device identifier supplied in the RequestingDeviceID field (Table 6-11). NONE is an acceptable value.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The device ID of the device connection that is to be released.	STRING	64
AgentInstrument (optional)	The ACD instrument number of the instrument with device connection that is to be released.	STRING	64
CTIOSCILClientID	Unique ID for use by CTI OS to identify the CIL Client	STRING	64
RequestingDeviceID (optional)	Optionally specifies the controller device requesting the clear operation.	STRING	64
Maximum message size (including header):			220

The CTI Server sends the CLEAR_CONNECTION_CONF message, defined in Table 5-101, to confirm receipt of the request.

Table 5-101 CLEAR_CONNECTION_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 47.	MHDR	8

Table 5-101 CLEAR_CONNECTION_CONF Message Format (continued)

InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

CONFERENCE_CALL_REQ

Use this message to conference an existing held call with another active call. The two calls are merged and the two connections at the conferencing device are in the connected state. The CONFERENCE_CALL_REQ message is defined in Table 5-102.

Table 5-102 CONFERENCE_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 48.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
HeldConnection CallID	The Call ID value assigned to the held call by the peripheral or Unified CCE.	UINT	4
ActiveConnection CallID	The Call ID value assigned to the active call by the peripheral or Unified CCE.	UINT	4
HeldConnection DeviceIDType	The type of device ID in the HeldConnectionDeviceID floating field (Table 6-13).	USHORT	2
ActiveConnection DeviceIDType	The type of device ID in the ActiveConnectionDevice ID floating field (Table 6-13).	USHORT	2
CallPlacement Type	One of the values from Table 6-21 specifying how the call is to be placed.	USHORT	2
CallMannerType	One of the values from Table 6-22 specifying additional call processing options.	USHORT	2
AlertRings	The maximum amount of time that the call's destination will remain alerting, specified as an approximate number of rings. A zero value indicates that the peripheral default (typically 10 rings) should be used.	USHORT	2
CallOption	One of the values from Table 6-23 specifying additional peripheral-specific call options.	USHORT	2
FacilityType	One of the values from Table 6-25 indicating the type of facility to be used.	USHORT	2

Table 5-102 CONFERENCE_CALL_REQ Message Format (continued)

AnsweringMachine	One of the values from Table 6-26 specifying the action to be taken if the call is answered by an answering machine.	USHORT	2
Priority	Set to TRUE if the call should receive priority handling.	BOOL	2
PostRoute	When this field is set to TRUE and a DialedNumber is provided instead of a held call (single step conference), the Unified CCE post-routing capabilities determine the new call destination.	BOOL	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamed Arrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
ActiveConnection DeviceID	The device ID of the device associated with the active connection.	STRING	64
HeldConnection Device ID	The device ID of the device associated with the held connection.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
DialedNumber (optional)	The number to be dialed to effect a single step conference of the active call. Either a HeldConnection DeviceID or DialedNumber is required.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information.	UNSPEC	131
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of NamedVariable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMEDVAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252

Table 5-102 CONFERENCE_CALL_REQ Message Format (continued)

FacilityCode (optional)	A trunk access code, split extension, or other data needed to access the chosen facility.	STRING	40
Authorization Code (optional)	An authorization code needed to access the resources required to initiate the call.	STRING	40
AccountCode (optional)	A cost-accounting or client number used by the peripheral for charge-back purposes.	STRING	40
Maximum message size (including header):			3511

The CTI Server sends the CONFERENCE_CALL_CONF message, defined in Table 5-103, to confirm receipt of the request:

Table 5-103 CONFERENCE_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 49.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
NewConnection CallID	The Call ID value assigned to the resulting conference call by the peripheral or Unified CCE.	UINT	4
NewConnection DeviceIDType	The type of device ID in the NewConnectionDeviceID floating field (Table 6-13).	USHORT	2
NumParties	The number of active connections associated with this conference call, up to a maximum of 16 (Table 6-3). This value also indicates the number of Connected PartyCallID, ConnectedParty DeviceIDType, and Connected PartyDeviceID floating fields in the floating part of the message.	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	The type of the teleset line in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NewConnection DeviceID	The device ID of the device associated with the connection.	STRING	64
ConnectedParty CallID (optional)	The Call ID value assigned to one of the conference call parties. There may be more than one ConnectedParty CallID field in the message (see NumParties).	UINT	4

Table 5-103 CONFERENCE_CALL_CONF Message Format (continued)

ConnectedParty DeviceIDType (optional)	The type of device ID in the following ConnectedParty DeviceID floating field. There may be more than one ConnectedPartyDevice IDType field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyCallID field.	USHORT	2
ConnectedParty DeviceID (optional)	The device identifier of one of the conference call parties. There may be more than one ConnectedParty DeviceID field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyDeviceIDType field.	STRING	64
Maximum message size (including header):			1306

CONSULTATION_CALL_REQ

Use this message to request the combined action of placing an active call on hold and then making a new call. By default, the CTI Server uses the call context data of the active call to initialize the context data of the consultation call. You can override some or all of this original call context in the consultation call by providing the desired values in this request. The CONSULTATION_CALL_REQ message is defined in Table 5-104.

Table 5-104 CONSULTATION_CALL_REQ Message Format

Fixed Part

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 50.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ActiveConnection CallID	The Call ID value assigned to the active call by the peripheral or Unified CCE.	UINT	4
ActiveConnection DeviceIDType	The type of device ID in the ActiveConnectionDeviceID floating field (Table 6-13).	USHORT	2
CallPlacement Type	One of the values from Table 6-21 specifying how the call is to be placed.	USHORT	2
CallMannerType	One of the values from Table 6-22 specifying additional call processing options.	USHORT	2
ConsultType	One of the values from Table 6-24 indicating the reason for initiating the consult call.	USHORT	2

Table 5-104 CONSULTATION_CALL_REQ Message Format (continued)

AlertRings	The maximum amount of time that the call's destination will remain alerting, specified as an approximate number of rings. A zero value indicates that the peripheral default (typically 10 rings) should be used.	USHORT	2
CallOption	One of the values from Table 6-23 specifying additional peripheral-specific call options.	USHORT	2
FacilityType	One of the values from Table 6-25 indicating the type of facility to be used.	USHORT	2
Answering Machine	One of the values from Table 6-26 specifying the action to be taken if the call is answered by an answering machine.	USHORT	2
Priority	Set this field to TRUE if the consultation call should receive priority handling.	BOOL	2
PostRoute	When TRUE, the Unified CCE post-routing capabilities determine the new call destination.	BOOL	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamed Arrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
ActiveConnection DeviceID	The device ID of the device associated with the active connection.	STRING	64
DialedNumber	The number to be dialed to establish the new call.	STRING	40
AgentInstrument (optional)	The ACD instrument number of the instrument that should initiate the new call. This field may be required for some peripheral types.	STRING	64
UserToUserInfo (optional)	The ISDN user-to-user information element that should be used in place of the corresponding data from the active call.	UNSPEC	131
CallVariable1 (optional)	Call-related variable data that should be used in place of the corresponding variable from the active call.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data that should be used in place of the corresponding variable from the active call.	STRING	41
CallWrapupData (optional)	Call-related wrapup data that should be used in place of the corresponding data from the active call.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMEDVAR	251

Table 5-104 CONSULTATION_CALL_REQ Message Format (continued)

NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMEDARRAY	252
FacilityCode (optional)	A trunk access code, split extension, or other data needed to access the chosen facility.	STRING	40
Authorization Code (optional)	An authorization code needed to access the resources required to initiate the call.	STRING	40
AccountCode (optional)	A cost-accounting or client number used by the peripheral for charge-back purposes.	STRING	40
Maximum message size (including header):			2931

The CTI Server sends the CONSULTATION_CALL_CONF message, defined in Table 5-105, to confirm receipt of the request.

Table 5-105 CONSULTATION_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 51.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
NewConnection CallID	The Call ID value assigned to the resulting new call by the peripheral or Unified CCE.	UINT	4
NewConnection DeviceIDType	The type of device ID in the NewConnectionDeviceID floating field (Table 6-11).	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	The type of the teleset line in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NewConnection DeviceID	The device ID of the device associated with the new call.	STRING	64
Maximum message size (including header):			88

DEFLECT_CALL_REQ

Use this message during a call forward operation, to take an alerting call from a known device and move it to another device. The DEFLECT_CALL_REQ message is defined in Table 5-106.

Table 5-106 DEFLECT_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 52.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the alerting call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
CalledDevice Type	The type of device ID in the Called DeviceID floating field (Table 6-11).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The device ID of the device associated with the alerting connection.	STRING	64
CalledDeviceID	The destination device address identifying where the call is to be deflected.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			222

The CTI Server sends the DEFLECT_CALL_CONF message, defined in Table 5-107, to confirm receipt of the request.

Table 5-107 DEFLECT_CALL_CONF Message Format

Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 53.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

HOLD_CALL_REQ

Use this message to place an existing call connection into the held state. The HOLD_CALL_REQ message is defined in Table 5-108:

Table 5-108 HOLD_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 54.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Reservation	TRUE to reserve the facility for reuse by the held call. Not appropriate for most non-ISDN telephones.	BOOL	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			156

The CTI Server sends the HOLD_CALL_CONF message, defined in Table 5-109, to confirm receipt of the request.

Table 5-109 HOLD_CALL_CONF Message Format

Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 55.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

MAKE_CALL_REQ

Use this message to initiate a call between two devices. This request attempts to create a new call and establish a connection between the calling device (originator) and the called device (destination). The MAKE_CALL_REQ message is defined in Table 5-110.

Table 5-110 MAKE_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 56.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the devices are located.	UINT	4
CallPlacement Type	One of the values from Table 6-21 specifying how the call is to be placed.	USHORT	2
CallMannerType	One of the values from Table 6-22 specifying additional call processing options.	USHORT	2
AlertRings	The maximum amount of time that the call's destination will remain alerting, specified as an approximate number of rings. A zero value indicates to use the peripheral default (typically 10 rings).	USHORT	2
CallOption	One of the values from Table 6-23 specifying additional peripheral-specific call options.	USHORT	2
FacilityType	One of the values from Table 6-25 indicating the type of facility to be used.	USHORT	2
Answering Machine	One of the values from Table 6-26 specifying the action to be taken if the call is answered by an answering machine.	USHORT	2
Priority	Set this field to TRUE if the call should receive priority handling.	BOOL	2
PostRoute	When TRUE, the Unified CCE post-routing capabilities determine the new call destination.	BOOL	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
SkilGroupNumber	The peripheral number of the skill group to make the call on behalf of. May be NULL_SKILL_GROU P if default is desired.	UINT	4

Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The agent's ACD instrument number	STRING	64

Table 5-110 MAKE_CALL_REQ Message Format (continued)

DialedNumber	The number to be dialed to establish the new call.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information.	UNSPEC	131
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 5-5 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 5-6 for the format of this field.	NAMED ARRAY	252
FacilityCode (optional)	A trunk access code, split extension, or other data needed to access the chosen facility.	STRING	40
AuthorizationCode (optional)	An authorization code needed to access the resources required to initiate the call.	STRING	40
AccountCode (optional)	A cost-accounting or client number used by the peripheral for charge-back purposes.	STRING	40
CCT (optional)	Call control table, required for Aspect PIM unless Call Placement Type is CPT_OUTBOUND.	STRING	4
Maximum message size (including header):			2875

The CTI Server sends the MAKE_CALL_CONF message, defined in Table 5-111, to confirm receipt of the request.

Table 5-111 MAKE_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 57.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
NewConnection CallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4

Table 5-111 MAKE_CALL_CONF Message Format (continued)

NewConnection DeviceIDType	The type of device ID in the NewConnection Device ID floating field (Table 6-13).	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	The type of the teleset line in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NewConnection DeviceID	The device ID of the device associated with the connection.	STRING	64
Maximum message size (including header):			88

MAKE_PREDICTIVE_CALL_REQ

Use this message to request the initiation of a call between a group of devices and a logical device on behalf of a calling device (originating). The request creates a new call and establishes a connection with the called device (terminating).

The MAKE_PREDICTIVE_CALL_REQ message is defined in Table 5-112.

Table 5-112 MAKE_PREDICTIVE_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 58.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the devices are located.	UINT	4
CallPlacementType	One of the values from Table 6-21 specifying how the call is to be placed.	USHORT	2
CallMannerType	One of the values from Table 6-22 specifying additional call processing options.	USHORT	2
AlertRings	The maximum amount of time that the call's destination will remain alerting, specified as an approximate number of rings. A zero value indicates that the peripheral default (typically 10 rings) should be used.	USHORT	2
CallOption	One of the values from Table 6-23 specifying additional peripheral-specific call options.	USHORT	2
FacilityType	One of the values from Table 6-25 indicating the type of facility to be used.	USHORT	2

Table 5-112 MAKE_PREDICTIVE_CALL_REQ Message Format (continued)

AnsweringMachine	One of the values from Table 6-26 specifying the action to be taken if the call is answered by an answering machine.	USHORT	2
Priority	Set this field to TRUE if the call should receive priority handling.	BOOL	2
AllocationState	One of the values from Table 6-17 indicating the destination connection state that should cause the call to be connected to the originating device.	USHORT	2
DestinationCountry	One of the values from Table 6-29 specifying the country of the destination of the call.	USHORT	2
AnswerDetectMode	One of the values from Table 6-27 specifying the mode of operation of the answering machine detection equipment.	USHORT	2
AnswerDetectTime	The time interval, in seconds, allotted for answering machine detection. A zero value indicates that the peripheral default should be used.	USHORT	2
AnswerDetect Control1	A peripheral-specific value used to control the operation of answering machine detection equipment. Set this field to zero when not used or not applicable.	ULONG	4
AnswerDetect Control2	A peripheral-specific value used to control the operation of answering machine detection equipment. Set this field to zero when not used or not applicable.	ULONG	4
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
OriginatingDevice ID	The ACD device (CCT, VDN, etc.) that will originate the call.	STRING	64
DialedNumber	The number to be dialed to establish the new call.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information.	UNSPEC	131
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40

Table 5-112 MAKE_PREDICTIVE_CALL_REQ Message Format (continued)

NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMEDVAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
FacilityCode (optional)	A trunk access code, split extension, or other data needed to access the chosen facility.	STRING	40
AuthorizationCode (optional)	An authorization code needed to access the resources required to initiate the call.	STRING	40
AccountCode (optional)	A cost-accounting or client number used by the peripheral for charge-back purposes.	STRING	40
OriginatingLineID (optional)	The originating line ID to be used for the call (not supported by all ACDs and trunk types).	STRING	40
CCT (optional)	Call control table, required for Aspect PIM unless Call Placement Type is CPT_OUTBOUND.	STRING	4
Maximum message size (including header):			2913

The MAKE_PREDICTIVE_CALL_CONF message, defined in Table 5-113, confirms receipt of the request.

Table 5-113 MAKE_PREDICTIVE_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 59.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
NewConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
NewConnectionDeviceIDType	Indicates the type of the device identifier supplied in the NewConnectionDeviceID floating field (Table 6-13).	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	Indicates the type of the teleset line given in the LineHandle field (Table 6-14).	USHORT	2

Table 5-113 MAKE_PREDICTIVE_CALL_CONF Message Format (continued)

Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NewConnectionDevice ID	The device identifier of the device associated with the connection.	STRING	64
Maximum message size (including header):			88

RECONNECT_CALL_REQ

Use this message to request the combined action of clearing an active call and then retrieving an existing held call. The RECONNECT_CALL_REQ message is defined in Table 5-114.

Table 5-114 RECONNECT_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 60.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the calls are located.	UINT	4
ActiveConnectionCallID	The Call ID value assigned to the currently active call by the peripheral or Unified CCE.	UINT	4
HeldConnectionCallID	The Call ID value assigned to the held call by the peripheral or Unified CCE.	UINT	4
ActiveConnectionDevice IDType	The type of device ID in the ActiveConnection DeviceID floating field (Table 6-13).	USHORT	2
HeldConnectionDevice IDType	The type of device ID in the HeldConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ActiveConnection DeviceID	The device ID of the device associated with the currently active connection.	STRING	64
HeldConnectionDevice ID	The device ID of the device associated with the held connection.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			226

The CTI Server sends the RECONNECT_CALL_CONF message, defined in Table 5-115, to confirm receipt of the request.

Table 5-115 RECONNECT_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. Message Type = 61.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

RETRIEVE_CALL_REQ

Use this message to retrieve an existing held connection. The RETRIEVE_CALL_REQ message is defined in Table 5-116.

Table 5-116 RETRIEVE_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 62.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the call is located.	UINT	4
HeldConnection CallID	The Call ID value assigned to the held call by the peripheral or Unified CCE.	UINT	4
HeldConnection DeviceIDType	The type of device ID in the HeldConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
HeldConnection DeviceID	The device ID of the device associated with the held connection.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
Maximum message size (including header):			154

The CTI Server sends the RETRIEVE_CALL_CONF message, defined in Table 5-117, to confirm receipt of the request.

Table 5-117 RETRIEVE_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 63.	MHDR	8

Table 5-117 RETRIEVE_CALL_CONF Message Format (continued)

InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

TRANSFER_CALL_REQ

Use this message to transfer a held call to an active call. The two calls must have connections to a single common device. Upon transfer, both of the connections with the common device become NULL and their connection identifiers are released.

You can also use this message to transfer an active call to another number (single step or blind transfer).

The TRANSFER_CALL_REQ message is defined in Table 5-118.

Table 5-118 TRANSFER_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 64.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the calls are located.	UINT	4
ActiveConnection CallID	The Call ID value assigned to the currently active call by the peripheral or Unified CCE.	UINT	4
HeldConnectionCallID	The Call ID value assigned to the held call by the peripheral or Unified CCE. If there is no held call (single step transfer), this field must be set to 0xffffffff.	UINT	4
ActiveConnection DeviceIDType	The type of device ID in the ActiveConnectionDeviceID floating field (Table 6-13).	USHORT	2
HeldConnectionDevice IDType	The type of device ID in the HeldConnectionDeviceID floating field (Table 6-13). If there is no held call (single step transfer), this field must be set to CONNECTION_ ID_NONE and no Held Connection DeviceID floating field is needed.	USHORT	2
CallPlacementType	One of the values from Table 6-21 specifying how the call is to be placed.	USHORT	2
CallMannerType	One of the values from Table 6-22 specifying additional call processing options.	USHORT	2

Table 5-118 TRANSFER_CALL_REQ Message Format (continued)

AlertRings	The maximum amount of time that the call's destination will remain alerting, specified as an approximate number of rings. A zero value indicates to use the peripheral default (typically 10 rings).	USHORT	2
CallOption	One of the values from Table 6-23 specifying additional peripheral-specific call options.	USHORT	2
FacilityType	One of the values from Table 6-25 indicating the type of facility to be used.	USHORT	2
AnsweringMachine	One of the values from Table 6-26 specifying the action to be taken if the call is answered by an answering machine.	USHORT	2
Priority	Set this field to TRUE if the call should receive priority handling.	BOOL	2
PostRoute	When TRUE and a DialedNumber is provided instead of a held call (single step transfer), the Unified CCE post-routing capabilities determine the new call destination.	BOOL	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2

Floating Part

Field Name	Value	Data Type	Max. Size
ActiveConnection DeviceID	The device ID of the device associated with the currently active connection.	STRING	64
HeldConnectionDevice ID (optional)	The device ID of the device associated with the held connection. Either a Held ConnectionDeviceID or DialedNumber is required.	STRING	64
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
DialedNumber (optional)	The number to be dialed to effect a single step transfer of the active call. Either a HeldConnectionDeviceID or DialedNumber is required.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information.	UNSPEC	131
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…

Table 5-118 TRANSFER_CALL_REQ Message Format (continued)

CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40
NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
FacilityCode (optional)	A trunk access code, split extension, or other data needed to access the chosen facility.	STRING	40
AuthorizationCode (optional)	An authorization code needed to access the resources required to initiate the call.	STRING	40
AccountCode (optional)	A cost-accounting or client number that the peripheral uses for charge-back purposes.	STRING	40
Maximum message size (including header):			3511

The CTI Server sends the TRANSFER_CALL_CONF message, defined in Table 5-119, to confirm receipt of the request:

Table 5-119 TRANSFER_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 65.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
NewConnectionCallID	The Call ID value assigned to the resulting transferred call by the peripheral or Unified CCE.	UINT	4
NewConnection DeviceIDType	The type of device ID in the NewConnectionDeviceID floating field (Table 6-13).	USHORT	2

Table 5-119 TRANSFER_CALL_CONF Message Format (continued)

NumParties	The number of active connections associated with this conference call, up to a maximum of 16 (Table 6-3). This value also indicates the number of ConnectedPartyCall ID, ConnectedPartyDevice IDType, and ConnectedParty DeviceID floating fields in the floating part of the message.	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	The type of the teleset line in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
NewConnection DeviceID	The device ID of the device associated with the connection.	STRING	64
ConnectedPartyCallID (optional)	The Call ID value assigned to one of the conference call parties. There may be more than one ConnectedParty CallID field in the message (see NumParties).	UINT	4
ConnectedPartyDeviceIDType (optional)	The type of device ID (Table 6-13) in the following ConnectedParty DeviceID floating field. There may be more than one Connected PartyDeviceID Type field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyCallID field.	USHORT	2
ConnectedPartyDeviceID (optional)	The device identifier of one of the conference call parties. There may be more than one ConnectedPartyDeviceID field in the message (see NumParties). This field always immediately follows the corresponding Connected PartyDeviceIDType field.	STRING	64
Maximum message size (including header):			1306

QUERY_DEVICE_INFO_REQ

Use this message to retrieve general information about a specified device. The QUERY_DEVICE_INFO_REQ message is defined in Table 5-120.

Table 5-120 QUERY_DEVICE_INFO_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 78.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The PeripheralID of the ACD where the device is located.	UINT	4
Reserved	Reserved for internal use, set this field to zero.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The device instrument number.	STRING	64
Maximum message size (including header):			84

The CTI Server sends the QUERY_DEVICE_INFO_CONF message, defined in Table 5-121, as the query response.

Table 5-121 QUERY_DEVICE_INFO_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 79.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
PeripheralType	The type of the peripheral (Table 6-7).	USHORT	2
TypeOfDevice	One of the values from Table 6-19 specifying the type of the device.	USHORT	2
ClassOfDevice	One or more of the value flags from Table 6-20 specifying the class(es) of the device.	USHORT	2
NumLines	The number of LineHandle and LineType fields in the floating part of the message, up to a maximum of 10.	USHORT	2
Reserved	Reserved for internal use.	USHORT	2
MaxActiveCalls	The maximum number of concurrent calls that can be active at the device. Set to 0xFFFF if unknown or unavailable.	USHORT	2

Table 5-121 QUERY_DEVICE_INFO_CONF Message Format (continued)

MaxHeldCalls	The maximum number of concurrent calls that can be held at the device. Set to 0xFFFF if unknown or unavailable.	USHORT	2
MaxDevicesIn Conference	The maximum number of devices that may participate in conference calls at the device. Set to 0xFFFF if unknown or unavailable.	USHORT	2
MakeCallSetup	A bitwise combination of Agent State Masks listed in Table 6-5 in which a MAKE_CALL_REQ may be initiated.	UINT	4
TransferConference Setup	A bitwise combination of the Transfer Conference Setup Masks listed in Table 5-122 that represent all of the valid ways that the device may be set up for a transfer or conference.	UINT	4
CallEventsSupported	A bitwise combination of the Unsolicited Call Event Message Masks that may be generated by calls at the device.	UINT	4
CallControlSupported	A bitwise combination of the Call Control Masks listed in Table 5-123 that represent all of the valid call control requests supported by the device.	UINT	4
OtherFeaturesSupported	A bitwise combination of the Other Feature Masks listed in Table 5-124 that represent the other features supported by the device.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
LineHandle	This field identifies the “handle” that is used by the Unified CCE for this teleset line. There may be more than one LineHandle field in the message (see NumLines).	USHORT	2
LineType	The type of the teleset line in the preceding Line Handle field (Table 6-14). There may be more than one LineHandle field in the message (see NumLines). This field always immediately follows the corresponding LineHandle field.	USHORT	2
Maximum message size (including header):			132

Table 5-122 Transfer Conference Setup Masks

MaskName	Description	Value
CONF_SETUP_CONSULT_ SPECIFIC	ACD call and consultation call that was initiated with a specific transfer or conference CallType.	0x00000001
CONF_SETUP_CONSULT_ ANY	ACD call and consultation call that was initiated with any CallType.	0x00000002
CONF_SETUP_CONN_ HELD	Any connected call and any held call.	0x00000004

Table 5-122 Transfer Conference Setup Masks (continued)

CONF_SETUP_ANY_ TWO_CALLS	Any two call appearances.	0x00000008
CONF_SETUP_SINGLE_ ACD_CALL	A single ACD call (blind conference).	0x00000010
TRANS_SETUP_SINGLE_ ACD_CALL	A single ACD call (blind transfer).	0x00000020
CONF_SETUP_ANY_ SINGLE_CALL	Any single connected call (blind conference).	0x00000040
TRANS_SETUP_ANY_ SINGLE_CALL	Any single connected call (blind transfer).	0x00000080

Table 5-123 lists the Call Control Masks.

Table 5-123 Call Control Masks

Mask Name	Client Control Requests	Value
CONTROL_QUERY_ AGENT_STATE	QUERY_AGENT_STATE	0x00000001
CONTROL_SET_AGENT_STA TE	SET_AGENT_STATE	0x00000002
CONTROL_ ALTERNATE_CALL	ALTERNATE_CALL	0x00000004
CONTROL_ANSWER_ CALL	ANSWER_CALL	0x00000008
CONTROL_CLEAR_ CALL	CLEAR_CALL	0x00000010
CONTROL_CLEAR_ CONNECTION	CLEAR_CONNECTION	0x00000020
CONTROL_ CONFERENCE_CALL	CONFERENCE_CALL	0x00000040
CONTROL_ CONSULTATION_CALL	CONSULTATION_CALL	0x00000080
CONTROL_DEFLECT_ CALL	DEFLECT_CALL	0x00000100
CONTROL_HOLD_CALL	HOLD_CALL	0x00000200
CONTROL_MAKE_CALL	MAKE_CALL	0x00000400
CONTROL_MAKE_ PREDICTIVE_CALL	MAKE_PREDICTIVE_CALL	0x00000800
CONTROL_ RECONNECT_CALL	RECONNECT_CALL	0x00001000
CONTROL_RETRIEVE_ CALL	RETRIEVE_CALL	0x00002000
CONTROL_TRANSFER_ CALL	TRANSFER_CALL	0x00004000
CONTROL_QUERY_ DEVICE_INFO	QUERY_DEVICE_INFO	0x00008000
CONTROL_SNAPSHOT_CAL L	SNAPSHOT_CALL	0x00010000
CONTROL_SNAPSHOT_DEVI CE	SNAPSHOT_DEVICE	0x00020000
CONTROL_SEND_ DTMF_SIGNAL	SEND_DTMF_SIGNAL	0x00040000

Table 5-124 lists the Other Feature Masks.

Table 5-124 Other Feature Masks

Mask Name	Description	Value
FEATURE_POST_ROUTE	Unified CCE Post *Routing* feature available.	0x00000001
FEATURE_UNIQUE_ CONSULT_CALLID	Consultation call CallIDs are unique.	0x00000002

SNAPSHOT_CALL_REQ

Use this message to retrieve information about a specified call, including a list of the associated devices and the connection state for each device. The SNAPSHOT_CALL_REQ message is defined in Table 5-125.

Table 5-125 SNAPSHOT_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 82.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
Maximum message size (including header):			88

The CTI Server sends the SNAPSHOT_CALL_CONF message, defined in Table 5-126, to provide the requested data.

Table 5-126 SNAPSHOT_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 83.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4

Table 5-126 SNAPSHOT_CALL_CONF Message Format (continued)

CallType	The general classification of the call type (Table 6-12).	USHORT	2
NumCTIClients	The current number of CTI clients associated with this call. This value also indicates the number of CTI client signatures and timestamps in the floating part of the message.	USHORT	2
NumCallDevices	The number of active devices associated with this call, up to a maximum of 16 (Table 6-3). This value also indicates the number of CallConnectionCall ID, CallConnectionDeviceID Type, CallConnectionDevice ID, CallDeviceType, Call DeviceID, and CallDevice ConnectionState floating fields in the floating part of the message.	USHORT	2
NumNamed Variables	The number of NamedVariable floating fields present in the floating part of the message.	USHORT	2
NumNamedArrays	The number of NamedArray floating fields present in the floating part of the message.	USHORT	2
CalledParty Disposition	Indicates the disposition of the called party.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ANI (optional)	The calling line ID of the caller.	STRING	40
UserToUserInfo (optional)	The ISDN user-to-user information element.	UNSPEC	131
DNIS (optional)	The DNIS provided with the call.	STRING	32
DialedNumber (optional)	The number dialed.	STRING	40
CallerEnteredDigits (optional)	The digits entered by the caller in response to VRU prompting.	STRING	40
RouterCallKeyDay	Together with the RouterCall KeyCallID field forms the unique 64-bit key for locating this call's records in the Unified CCE. Only provided for Post-routed and Translation-routed calls.	UINT	4
RouterCallKey CallID	The call key created by Unified CCE. Unified CCE resets this counter at midnight.	UINT	4
CallVariable1 (optional)	Call-related variable data.	STRING	41
…	…	…	…
CallVariable10 (optional)	Call-related variable data.	STRING	41
CallWrapupData (optional)	Call-related wrapup data.	STRING	40

Table 5-126 SNAPSHOT_CALL_CONF Message Format (continued)

NamedVariable (optional)	Call-related variable data that has a variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-4 for the format of this field.	NAMED VAR	251
NamedArray (optional)	Call-related variable data that has an array variable name defined in the Unified CCE. There may be an arbitrary number of Named Variable and NamedArray fields in the message, subject to a combined total limit of 2000 bytes. See Table 3-5 for the format of this field.	NAMED ARRAY	252
CTIClientSignature	The Client Signature of a CTI client previously associated with this call. There may be more than one CTIClient Signature field in the message (see NumCTIClients).	STRING	64
CTIClient Timestamp	The date and time that the preceding CTIClient signature was first associated with the call. There may be more than one CTIClientTimestamp field in the message (see NumCTI Clients). This field always immediately follows the CTIClientSignature field to which it refers.	TIME	4
CallConnection CallID (optional)	The Call ID value assigned to one of the call device connections. There may be more than one CallConnection CallID field in the message (see NumCallDevices).	UINT	4
CallConnection DeviceIDType (optional)	The type of device ID (Table 6-13) in the following CallConnection DeviceID floating field. There may be more than one CallConnection DeviceIDType field in the message (see NumCallDevices). This field always immediately follows the corresponding CallConnection CallID field.	USHORT	2
CallConnection DeviceID (optional)	The device identifier of one of the call device connections. There may be more than one CallConnection DeviceID field in the message (see Num CallDevices). This field always immediately follows the corresponding CallConnection DeviceIDType field.	STRING	64

Table 5-126 SNAPSHOT_CALL_CONF Message Format (continued)

CallDeviceType (optional)	The type of device ID in the following CallDeviceID floating field (Table 6-11). There may be more than one CallDeviceIDType field in the message (see NumCall Devices). This field always immediately follows the corresponding CallConnection DeviceID field.	USHORT	2
CallDeviceID (optional)	The device ID of the subject device. There may be more than one CallDeviceID field in the message (see NumCall Devices). This field always immediately follows the corresponding CallDevice IDType field.	STRING	64
CallDevice Connection State (optional)	The local connection state of one of the call device connections (Table 6-8). There may be more than one Call DeviceConnection State field in the message (see NumCall Devices). This field always immediately follows the corresponding CallDeviceID field.	USHORT	2
CallReferenceID (optional)	For Unified CCE systems where the Unified CM provides it, this will be a unique call identifier.	UNSPEC	32
COCConnectionCallID (optional)	If specified, indicates that this call is a call on behalf of a consult call.	UINT	4
COCCallConnection DeviceIDType (optional)	If specified, indicates the type of connection identifier specified in the ConnectionDeviceID floating field for the original call (Table 6-13).	USHORT	2
COCCallConnection DeviceID (optional)	If specified, indicates the device portion of the connection identifier of the original call.	STRING	64
Maximum message size (including header):			6879

SNAPSHOT_DEVICE_REQ

Use this message to retrieve information on a specified device, including a list of the calls associated with the device and the current state of each call. The CTI Client must be granted both Client Control and All Events services to look at all devices. The SNAPSHOT_DEVICE_REQ message is defined in Table 5-127

Note If the SERVICE_ACD_LINE_ONLY service is requested, the SNAPSHOT_DEVICE_REQ include the calls in the confirmation that are on the primary (ACD) line but not the calls on secondary line.

Table 5-127 SNAPSHOT_DEVICE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**

Table 5-127 SNAPSHOT_DEVICE_REQ Message Format (continued)

MessageHeader	Standard message header. MessageType = 84.	MHDR	8
InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the device is located.	UINT	4
SnapshotDeviceType	For non-agent devices this indicates the type of the device specified in the DeviceIDType Values table (Table 6-11) supplied in the following AgentInstrument floating field.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
AgentInstrument	The device instrument number	STRING	64
Maximum message size (including header):			82

The CTI Server sends the SNAPSHOT_DEVICE_CONF message, defined in Table 5-128, to provide the requested data.

Table 5-128 SNAPSHOT_DEVICE_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 85.	MHDR	8
InvokeID	The value of the InvokeID from the corresponding request message.	UINT	4
NumCalls	The number of active calls associated with this device, up to a maximum of 16 (Table 6-3). This value also indicates the number of CallConnection CallID, CallConnectionDevice IDType, CallConnection DeviceID, and CallState floating fields in the floating part of the message.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
CallConnectionCallID (optional)	The CallID value assigned to one of the calls. There may be more than one Call ConnectionCallID field in the message (see NumCalls).	UINT	4

Table 5-128 SNAPSHOT_DEVICE_CONF Message Format (continued)

CallConnectionDevice IDType (optional)	The type of device ID (Table 6-13) in the following CallConnectionDeviceID floating field. There may be more than one CallConnection DeviceID Type field in the message (see NumCalls). This field always immediately follows the corresponding Call ConnectionCallID field.	USHORT	2
CallConnection DeviceID (optional)	The device identifier of one of the call connections. There may be more than one Call ConnectionDeviceID field in the message (see NumCalls). This field always immediately follows the corresponding CallConnectionDeviceIDType field.	STRING	64
CallState (optional)	The active state of the call (Table 6-8). There may be more than one CallState field in the message (see NumCalls). This field always immediately follows the corresponding Call ConnectionDeviceID field.	USHORT	2
SilentMonitorStatus (optional)	The silent monitor status for the call: • 0: normal call (not silent monitor call) • 1: monitor initiator of silent monitor call. This call was the result of a supervisor silently monitoring an agent. • 2: monitor target of silent monitor call. This call was the result of an agent being silently monitored. There may be more than one SilentMonitorStatus field in the message (see NumCalls). This field always immediately follows the corresponding CallState field.	USHORT	2
Maximum message size (including header):			1294

SEND_DTMF_SIGNAL_REQ

Use this message to request that the ACD transmit a sequence of DTMF tones on behalf of a call party. The SEND_DTMF_SIGNAL_REQ message is defined in Table 5-129.

Table 5-129 SEND_DTMF_SIGNAL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 91.	MHDR	8

Table 5-129 SEND_DTMF_SIGNAL_REQ Message Format (continued)

InvokeID	An ID for this request message, returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the device is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	The type of device ID in the Connection DeviceID floating field (Table 6-13).	USHORT	2
ToneDuration	Specifies the duration in milli-seconds of DTMF digit tones. Use 0 to take the default. May be ignored if the peripheral is unable to alter the DTMF tone timing.	USHORT	2
PauseDuration	Specifies the duration in milli-seconds of DTMF inter-digit spacing. Use 0 to take the default. May be ignored if the peripheral is unable to alter the DTMF tone timing.	UINT	4

Floating Part

Field Name	Value	Data Type	Max. Size
ConnectionDevice ID	The device ID of the device associated with the connection.	STRING	64
DTMFString	The sequence of tones to be generated.	STRING	32
AgentInstrument (optional)	The agent's ACD instrument number.	STRING	64
CTIOSCILClientID	Unique ID for use by CTI OS to identify CIL Client.	STRING	64
Maximum message size (including header):			194

The CTI Server sends the SEND_DTMF_SIGNAL_CONF message, defined in Table 5-130, to confirm receipt of the request.

Table 5-130 SEND_DTMF_SIGNAL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 92.	MHDR	8
InvokeID	Set to the value of the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header):			12

SUPERVISOR_ASSIST_REQ

When an agent needs supervisor assistance, an agent may send a SUPERVISOR_ASSIST_REQ message to the CTI server asking for assistance from a team supervisor. The message will be forwarded to the PIM, who will first check the team's primary supervisor. If the primary supervisor is not available, the PIM will initiate a post-route request to the Unified CCE CallRouter using the team's configured DialedNumber to find an available supervisor in the supervisor group. Once an available supervisor is

found, a call with calltype SUPERVISOR_ASSIST is initiated, and a SUPERVISOR_ASSIST_CONF will be sent to the requesting client. If no supervisor can be found a FAILURE_CONF response is returned to the requesting client.

The SUPERVISOR_ASSIST_REQ message, defined in Table 5-131, allows a CTI Client to notify the client agent's supervisor that assistance with the indicated call is required:

Table 5-131 SUPERVISOR_ASSIST_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 118.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value of the call that the agent needs assistance with. May contain the special value 0xffffffff when there is no related call.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the agent's device.	STRING	64
AgentExtension	The agent's ACD teleset extension. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Maximum message size (including header)			186

When a supervisor CTI client has been notified the CTI Server responds to the CTI Client with the SUPERVISOR_ASSIST_CONF message:

Table 5-132 SUPERVISOR_ASSIST_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 119.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
ConnectionCallID	The Call ID value assigned to the resulting SupervisorAssist call by the peripheral or Unified CCE.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	Indicates the type of the teleset line given in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the device connection associated with the new call.	STRING	64
Maximum message size (including header)			88

EMERGENCY_CALL_REQ

When an agent needs to declare an emergency situation to their supervisor, an agent may send EMERGENCY_CALL_REQ to the CTI server to notify an agent team supervisor. Like the Supervisor Assist Request, the message will be forwarded to the PIM, who will first check the team's primary supervisor. If the primary supervisor is not available, the PIM will initiate a post-route request to the Unified CCE CallRouter using the team's configured DialedNumber to find an available supervisor in the supervisor group. Once an available supervisor is found, a call with calltype EMERGENCY_ASSIST is initiated and an EMERGENCY_CALL_CONF will be sent to the requesting client. If no supervisor can be found a FAILURE_CONF response is returned to the requesting client. In addition, an EMERGENCY_CALL_EVENT will be sent to all bridge applications, even if no supervisor was found. At same time, an EMERGENCY_CALL_EVENT will be sent to recording servers. Emergency Call requests will always cause an Unified CCE event to be reported whether or not a supervisor was found to satisfy the request.

The EMERGENCY_CALL_REQ message, defined in Table 5-133, allows a CTI Client to notify the client agent's supervisor that an emergency call is in progress and generate a corresponding Unified CCE Alarm:

Table 5-133 EMERGENCY_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**

Table 5-133 EMERGENCY_CALL_REQ Message Format (continued)

MessageHeader	Standard message header. MessageType = 121.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value of the call that the agent needs assistance with. May contain the special value 0xffffffff when there is no related call.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the Connection DeviceID floating field (Table 6-13).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the agent's device.	STRING	64
AgentExtension	The agent's ACD teleset extension. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	16
AgentID	The agent's ACD login ID. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	12
AgentInstrument	The agent's ACD instrument number. For clients with ALL EVENTS or PERIPHERAL MONITOR service, at least one of AgentExtension, AgentID, or AgentInstrument must be provided.	STRING	64
Maximum message size (including header)			186

The CTI Server responds to the CTI Client with the EMERGENCY_CALL_CONF message:

Table 5-134 EMERGENCY_CALL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 122.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
ConnectionCallID	The Call ID value of the call that the agent needs assistance with. Contains the special value 0xffffffff if there is no related call.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the Connection DeviceID floating field (Table 6-13).	USHORT	2

Table 5-134 EMERGENCY_CALL_CONF Message Format (continued)

LineHandle	This field identifies the teleset line used, if known. Otherwise this field is set to 0xffff.	USHORT	2
LineType	Indicates the type of the teleset line given in the LineHandle field (Table 6-14).	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDevice ID	The identifier of the connection between the call and the agent's device.	STRING	64
Maximum message size (including header)			88

The EMERGENCY_CALL_EVENT message, defined in Table 5-135, notifies bridge clients that an agent is handling the indicated call as an emergency call:

Table 5-135 EMERGENCY_CALL_EVENT Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 123.	MHDR	8
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ConnectionCallID	The Call ID value assigned to the call by the peripheral or Unified CCE.	UINT	4
ConnectionDeviceIDType	Indicates the type of the connection identifier supplied in the ConnectionDeviceID floating field (Table 6-13).	USHORT	2
SessionID	The CTI client SessionID of the CTI client making the notification.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ConnectionDeviceID	The identifier of the connection between the call and the agent's device.	STRING	64
ClientID	The ClientID of the client making the notification.	STRING	64
ClientAddress	The IP address of the client making the notification.	STRING	16
AgentExtension	The agent's ACD teleset extension.	STRING	16
AgentID	The agent's ACD login ID.	STRING	12
AgentInstrument	The agent's ACD instrument number.	STRING	64
Maximum message size (including header)			274

BAD_CALL_REQ

The agent or supervisor can click on a Bad Call Line button on their desktop to initiate this feature. A record would capture the information of the trunk, gateways, and other devices used in the connection. This information is intended to aid troubleshooting by service personnel.

When a line condition is in poor quality, an agent could send the BAD_CALL_REQ message to mark the bad line:

Table 5-136 BAD_CALL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 139.	MHDR	8

Table 5-136 BAD_CALL_REQ Message Format (continued)

InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The Unified CCE PeripheralID of the ACD where the call is located.	UINT	4
ConnectionDevice IDType	Indicates the type of the connection identifier supplied in the Connection DeviceID floating field (Table 6-13).	USHORT	2
ConnectionCallID	The Call ID value of the call that the agent needs to mark to bad line call.	UINT	4
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
Connection DeviceID	The identifier of the connection between the call and the agent's device.	STRING	64
AgentID	The AgentID.	STRING	12
Maximum message size (including header)			102

When the request has been processed, the CTI Server responds to the CTI Client with the BAD_CALL_CONF message:

Table 5-137 BAD_CALL_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 140.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header)			12

AGENT_GREETING_CONTROL_REQ

The AGENT_GREETING_CONTROL_REQ allows the agent to stop the greeting while the greeting is playing and allows the agent to enable or disable the playing of the greeting during a login sesssion.

Table 5-138 AGENT_GREETING_CONTROL_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 249	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
PeripheralID	The ICR PeripheralID of the ACD where the call is located.	UINT	4

Table 5-138 AGENT_GREETING_CONTROL_REQ Message Format (continued)

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
AgentAction	0 = stop the greeting that is currently being played. 1 = disable Agent Greeting for this login session. 2 = enable Agent Greeting for this login session. Notes: AgentAction = 0 stops the playing of the Agent Greeting for the current call. Agent Action = disables Agent Greeting feature for the rest of login session but does not stop the greeting that currently playing for the current call.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Byte Size**
AgentID *(required)*	The agent's ACD login ID.	String	12
Maximum message size (including header)			30

The CTI Server responds to the CTI Client with the AGENT GREETING_CONTROL_CONF message:

Table 5-139 AGENT_GREETING_CONTROL_CONF Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 250.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header)			12

Server Service

A server application specifies the new service type CTI_SERVICE_SERVER to identify itself as server application. The server application then registers each service that it wishes to provide by sending a new message, REGISTER_SERVICE_REQ, to the CTI Server. When a CTI client application requests a service that is provided by a server application, such as CallRecording, the CTIServer selects a registered server application and forwards the client request to the server application. If no server is registered for the desired service the client request is refused with an E_CTI_NO_SERVER_FOR_REQUEST error.

The server service optionally allows multiple server applications to supply the same service. The *ServerMode* registration parameter determines how a server is selected to handle a given request. All server applications that wish to provide the same service must use the same *ServerMode*:

- **Exclusive**. The first server application to register the service is the only one to serve requests. All other requests to register a server application for that service are refused with an E_CTI_NO_SERVER_FOR_REQUEST.
- **Round-Robin**. Multiple server applications may register the service. The server application that has been waiting the longest for a request of this service type is chosen to service the request.
- **Parallel**. Multiple server applications may register the service. Every request is sent to all registered servers concurrently. Every server response is forwarded back to the requesting client.

REGISTER_SERVICE_REQ

Initially, the only service that server applications may provide is call recording by registering the "Cisco:CallRecording" service using a REGISTER_SERVICE_REQ message, defined in Table 5-140:

Table 5-140 REGISTER_SERVICE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 143.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
ServerMode	The CTI Server method is for selecting among multiple server applications that register to provide this service. All servers must specify the same *ServerMode*, one of the following values: 0: Exclusive; 1: Round-Robin; 2: Parallel.	USHORT	2
Floating Part			
Field Name	**Value**	**Data Type**	**Max. Size**
ServiceName	The name of the service that the application wishes to provide.	STRING	64
Maximum message size (including header)			80

The REGISTER_SERVICE_CONF message (Table 5-141) confirms successful completion of the request:

Table 5-141 REGISTER_SERVICE_CONF Message Format

Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 144.	MHDR	8

Table 5-141 REGISTER_SERVICE_CONF Message Format

InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
RegisteredServiceID	The ID of registered service.	UINT	4
Maximum message size (including header)			16

UNREGISTER_SERVICE_REQ

Prior to closing its session with the CTI Server, or at any time that the server application wishes to discontinue providing a registered service, it must send an UNREGISTER_SERVICE_REQ message, defined in Table 5-142:

Table 5-142 UNREGISTER_SERVICE_REQ Message Format

Fixed Part			
Field Name	**Value**	**Data Type**	**Byte Size**
MessageHeader	Standard message header. MessageType = 145.	MHDR	8
InvokeID	An ID for this request message that will be returned in the corresponding confirm message.	UINT	4
Registered ServiceID	The ID of registered service that the application wishes to unregistered	UINT	4
Maximum message size (including header)			16

The UNREGISTER_SERVICE_CONF message (Table 5-143) confirms successful completion of the request:

Table 5-143 UNREGISTER_SERVICE_CONF Message Format

Field Name	Value	Data Type	Byte Size
MessageHeader	Standard message header. MessageType = 146.	MHDR	8
InvokeID	Set to the same value as the InvokeID from the corresponding request message.	UINT	4
Maximum message size (including header)			12

CHAPTER 6

Constants and Status Codes

This section lists the possible values for various status codes and fields that can appear in CTI Server messages. These values are defined in the CTILink.h file, located in the \icm\include directory.

Failure Indication Message Status Codes

Table 6-1 shows the status codes that may be included in the FAILURE_CONF and FAILURE_EVENT messages.

Table 6-1 Status Codes

Status Code	Description	Value
E_CTI_NO_ERROR	No error occurred.	0
E_CTI_INVALID_ VERSION	The CTI Server does not support the protocol version number requested by the CTI client.	1
E_CTI_INVALID_ MESSAGE_ TYPE	A message with an invalid message type field was received.	2
E_CTI_INVALID_ FIELD_TAG	A message with an invalid floating field tag was received.	3
E_CTI_SESSION_ NOT_OPEN	No session is currently open on the connection.	4
E_CTI_SESSION_ ALREADY_ OPEN	A session is already open on the connection.	5
E_CTI_REQUIRED_ DATA_ MISSING	The request did not include one or more floating items that are required.	6
E_CTI_INVALID_ PERIPHERAL_ID	A message with an invalid PeripheralID value was received.	7
E_CTI_INVALID_ AGENT_ DATA	The provided agent data item(s) are invalid.	8
E_CTI_AGENT_NOT_ LOGGED_ON	The indicated agent is not currently logged on.	9
E_CTI_DEVICE_IN_ USE	The indicated agent teleset is already associated with a different CTI client.	10
E_CTI_NEW_ SESSION_ OPENED	This session is being terminated due to a new session open request from the client.	11

Table 6-1 Status Codes (continued)

Status Code	Description	Value
E_CTI_FUNCTION_ NOT_ AVAILABLE	A request message was received for a function or service that was not granted to the client.	12
E_CTI_INVALID_ CALLID	A request message was received with an invalid CallID value.	13
E_CTI_PROTECTED_ VARIABLE	The CTI client may not update the requested variable.	14
E_CTI_CTI_SERVER_ OFFLINE	The CTI Server is not able to function normally. The CTI client should close the session upon receipt of this error.	15
E_CTI_TIMEOUT	The CTI Server failed to respond to a request message within the time-out period, or no messages have been received from the CTI client within the IdleTimeout period.	16
E_CTI_UNSPECIFIED_FAILURE	An unspecified error occurred.	17
E_CTI_INVALID_ TIMEOUT	The IdleTimeout field contains a value that is less than 20 seconds (4 times the minimum heartbeat interval of 5 seconds).	18
E_CTI_INVALID_ SERVICE_MASK	The ServicesRequested field has unused bits set. All unused bit positions must be zero.	19
E_CTI_INVALID_ CALL_MSG_MASK	The CallMsgMask field has unused bits set. All unused bit positions must be zero.	20
E_CTI_INVALID_ AGENT_ STATE_ MASK	The AgentStateMask field has unused bits set. All unused bit positions must be zero.	21
E_CTI_INVALID_ RESERVED_ FIELD	A Reserved field has a non-zero value.	22
E_CTI_INVALID_ FIELD_ LENGTH	A floating field exceeds the allowable length for that field type.	23
E_CTI_INVALID_ DIGITS	A STRING field contains characters that are not digits (“0” through “9”).	24
E_CTI_BAD_ MESSAGE_ FORMAT	The message is improperly constructed. This may be caused by omitted or incorrectly sized fixed message fields.	25
E_CTI_INVALID_ TAG_FOR_MSG_ TYPE	A floating field tag is present that specifies a field that does not belong in this message type.	26
E_CTI_INVALID_ DEVICE_ID_ TYPE	A DeviceIDType field contains a value that is not in Table 6-11.	27
E_CTI_INVALID_ LCL_CONN_ STATE	A LocalConnectionState field contains a value that is not in Table 6-8.	28
E_CTI_INVALID_ EVENT_ CAUSE	An EventCause field contains a value that is not in Table 6-9.	29

Table 6-1 Status Codes (continued)

Status Code	Description	Value
E_CTI_INVALID_ NUM_ PARTIES	The NumParties field contains a value that exceeds the maximum (16).	30
E_CTI_INVALID_ SYS_ EVENT_ID	The SystemEventID field contains a value that is not in Table 6-2.	31
E_CTI_ INCONSISTENT_ AGENT_DATA	The provided agent extension, agent id, and/or agent instrument values are inconsistent with each other.	32
E_CTI_INVALID_ CONNECTION_ID_ TYPE	A ConnectionDeviceIDType field contains a value that is not in Table 6-13.	33
E_CTI_INVALID_ CALL_TYPE	The CallType field contains a value that is not in Table 6-12.	34
E_CTI_NOT_CALL_ PARTY	A CallDataUpdate or Release Call request specified a call that the client is not a party to.	35
E_CTI_INVALID_ PASSWORD	The ClientID and Client Password provided in an OPEN_REQ message is incorrect.	36
E_CTI_CLIENT_ DISCONNECTED	The client TCP/IP connection was disconnected without a CLOSE_REQ.	37
E_CTI_INVALID_ OBJECT_ STATE	An invalid object state value was provided.	38
E_CTI_INVALID_ NUM_ SKILL_GROUPS	An invalid NumSkillGroups value was provided.	39
E_CTI_INVALID_ NUM_LINES	An invalid NumLines value was provided.	40
E_CTI_INVALID_ LINE_TYPE	An invalid LineType value was provided.	41
E_CTI_INVALID_ ALLOCATION_STATE	An invalid AllocationState value was provided.	42
E_CTI_INVALID_ ANSWERING_ MACHINE	An invalid AnsweringMachine value was provided.	43
E_CTI_INVALID_ CALL_MANNER_ TYPE	An invalid CallMannerType value was provided.	44
E_CTI_INVALID_ CALL_PLACEMENT_ TYPE	An invalid CallPlacementType value was provided.	45
E_CTI_INVALID_ CONSULT_ TYPE	An invalid ConsultType value was provided.	46
E_CTI_INVALID_ FACILITY_ TYPE	An invalid FacilityType value was provided.	47
E_CTI_INVALID_ MSG_TYPE_ FOR_ VERSION	The provided MessageType is invalid for the opened protocol version.	48
E_CTI_INVALID_ TAG_FOR_ VERSION	A floating field tag value is invalid for the opened protocol version.	49
E_CTI_INVALID_ AGENT_WORK_ MODE	An invalid AgentWorkMode value was provided.	50
E_CTI_INVALID_ CALL_OPTION	An invalid call option value was provided.	51

Table 6-1 Status Codes (continued)

Status Code	Description	Value
E_CTI_INVALID_ DESTINATION_ COUNTRY	An invalid destination country value was provided.	52
E_CTI_INVALID_ ANSWER_DETECT_ MODE	An invalid answer detect mode value was provided.	53
E_CTI_MUTUALLY_ EXCLUS_DEVICEID_ TYPES	A peripheral monitor request may not specify both a call and a device.	54
E_CTI_INVALID_ MONITORID	An invalid monitorID value was provided.	55
E_CTI_SESSION_ MONITOR_ ALREADY_EXISTS	A requested session monitor was already created.	56
E_CTI_SESSION_ MONITOR_IS_ CLIENTS	A client may not monitor its own session.	57
E_CTI_INVALID_ CALL_CONTROL_ MASK	An invalid call control mask value was provided.	58
E_CTI_INVALID_ FEATURE_MASK	An invalid feature mask value was provided.	59
E_CTI_INVALID_ TRANSFER_ CONFERENCE_ SETUP_MASK	An invalid transfer conference setup mask value was provided.	60
E_CTI_INVALID_ ARRAY_INDEX	An invalid named array index value was provided.	61
E_CTI_INVALID_ CHARACTER	An invalid character value was provided.	62
E_CTI_CLIENT_NOT_FOUND	There is no open session with a matching ClientID.	63
E_CTI_SUPERVISOR_NOT_FOUND	The agent's supervisor is unknown or does not have an open CTI session.	64
E_CTI_TEAM_NOT_ FOUND	The agent is not a member of an agent team.	65
E_CTI_NO_CALL_ ACTIVE	The specified agent does not have an active call.	66
E_CTI_NAMED_ VARIABLE_NOT_ CONFIGURED	The specified named variable is not configured in the Unified CCE.	67
E_CTI_NAMED_ ARRAY_NOT_ CONFIGURED	The specified named array is not configured in the Unified CCE.	68
E_CTI_INVALID_ CALL_VARIABLE_ MASK	The specified call variable mask in not valid.	69
E_CTI_ELEMENT_ NOT_FOUND	An internal error occurred manipulating a named variable or named array element.	70
E_CTI_INVALID_ DISTRIBUTION_TYPE	The specified distribution type is invalid.	71
E_CTI_INVALID_ SKILL_GROUP	The specified skill group is invalid.	72
E_CTI_TOO_MUCH_ DATA	The total combined size of named variables and named arrays may not exceed the limit of 2000 bytes.	73

Table 6-1 Status Codes (continued)

Status Code	Description	Value
E_CTI_VALUE_TOO_LONG	The value of the specified named variable or named array element exceeds the maximum permissible length.	74
E_CTI_SCALAR_ FUNCTION_ON_ ARRAY	A NamedArray was specified with a NamedVariable tag.	75
E_CTI_ARRAY_ FUNCTION_ON_ SCALAR	A NamedVariable was specified with a NamedArray tag.	76
E_CTI_INVALID_ NUM_NAMED_ VARIABLES	The value in the NumNamedVariables field is different than the number of NamedVariable floating fields in the message.	77
E_CTI_INVALID_ NUM_NAMED_ ARRAYS	The value in the NumNamedArrays field is different than the number of NamedArray floating fields in the message.	78
E_CTI_INVALID_RTP_DIRECTION	The RTP direction value is invalid.	79
E_CTI_INVALID_RTP_TYPE	The RTP type value is invalid.	80
E_CTI_CALLED_ PARTY_DISPOSITION	The called party disposition is invalid.	81
E_CTI_INVALID_ SUPERVISORY_ ACTION	The supervisory action is invalid.	82
E_CTI_AGENT_ TEAM_MONITOR_ ALREADY_EXISTS	The agent team monitor already exists.	83
E_CTI_INVALID_ SERVICE	The ServiceNumber or ServiceID value is invalid.	84
E_CTI_SERVICE_ CONFLICT	The ServiceNumber and ServiceID values given represent different services.	85
E_CTI_SKILL_ GROUP_CONFLICT	The SkillGroupNumber/SkillGroupPriority and SkillGroupID values given represent different skill groups.	86
E_CTI_INVALID_ DEVICE	The specified device is invalid.	87
E_CTI_INVALID_MR_DOMAIN	Media Routing Domain is invalid.	88
E_CTI_MONITOR_ ALREADY_EXISTS	Monitor already exists.	89
E_CTI_MONITOR_ TERMINATED	Monitor has terminated.	90
E_CTI_INVALID_ TASK_MSG_MASK	The task msg mask is invalid.	91
E_CTI_SERVER_NOT_MASTER	The server is a standby server.	92
E_CTI_INVALID_CSD	The CSD Specified is invalid (Unified CCX Only).	93
E_CTI_JTAPI_CCM_ PROBLEM	Indicates a JTAPI or Unified CM problem.	94
E_INVALID_CONFIG_ MSG_MASK	Indicates a bad config mask in OPEN_REQ.	95
E_CTI_AUTO_ CONFIG_RESET	Indicates a configuration change (Unified CCX only).	96

Table 6-1 Status Codes (continued)

Status Code	Description	Value
E_CTI_INVALID_ MONITOR_STATUS	Indicates an invalid monitor.	97
E_CTI_INVALID_ REQUEST_TYPE	Indicates an invalid request ID type.	98

SystemEventID Values

Table 6-2 shows the SystemEventID values that may be included in the SYSTEM_EVENT messages.

Table 6-2 SystemEventID Values

SystemEventID	Description	Value
SYS_CENTRAL_ CONTROLLER_ONLINE	The PG has resumed communication with the Unified CCE Central Controller.	1
SYS_CENTRAL_ CONTROLLER_OFFLINE	The PG is unable to communicate with the Unified CCE Central Controller.	2
SYS_PERIPHERAL_ ONLINE	A peripheral monitored by the PG has gone online. SystemEventArg1 contains the PeripheralID of the peripheral.	3
SYS_PERIPHERAL_ OFFLINE	A peripheral monitored by the PG has gone offline. SystemEventArg1 contains the PeripheralID of the peripheral.	4
SYS_TEXT_FYI	Broadcast of informational “text” floating field.	5
SYS_PERIPHERAL_ GATEWAY_OFFLINE	The CTI Server is unable to communicate with the Unified CCE Peripheral Gateway.	6
SYS_CTI_SERVER_ OFFLINE	The local software component is unable to communicate with the CTI Server.	7
SYS_CTI_SERVER_ ONLINE	The local software component has resumed communication with the CTI Server.	8
SYS_HALF_HOUR_ CHANGE	The Unified CCE Central Controller time has changed to a new half hour.	9
SYS_INSTRUMENT_ OUT_OF_SERVICE	An Enterprise Agent device target has been removed from service. SystemEventArg1 contains the PeripheralID of the peripheral, and SystemEventText contains the AgentInstrument that was removed from service.	10
SYS_INSTRUMENT_ BACK_IN_SERVICE	An Enterprise Agent device target has been returned to service. SystemEventArg1 contains the PeripheralID of the peripheral, and SystemEventText contains the AgentInstrument that was returned to service.	11

Special Values

Table 6-3 shows the values used to define sizes and limits, indicate special IDs, and unspecified data elements.

Table 6-3 Special Values

Constant	Description	Value
MAX_NUM_CTI_ CLIENTS	The maximum number of CTI clients that can be in a message list.	16
MAX_NUM_ PARTIES	The maximum number of conference call parties that can be in a message list.	16
MAX_NUM_ DEVICES	The maximum number of call devices that can be in a message list.	16
MAX_NUM_ CALLS	The maximum number of calls that can be in a message list.	16
MAX_NUM_ SKILL_GROUPS	The maximum number of skill group fields that can be in a message list.	20
MAX_NUM_LINES	The maximum number of teleset line fields that can be in a message list.	10
NULL_ CALL_ID	No call ID is supplied.	0xFFFFFFFF
NULL_ PERIPHERAL_ID	No peripheral ID is supplied.	0xFFFFFFFF
NULL_SERVICE	No service is supplied.	0xFFFFFFFF
NULL_SKILL_ GROUP	No skill group is supplied.	0xFFFFFFFF
NULL_CALLTYPE	Indicates that no CallType is supplied.	0xFFFF

Tag Values

Table 6-4 shows the values used in the tag subfield of floating fields.

Table 6-4 Tag Values

Floating Field Tag	Using Messages	Value
CLIENT_ID_TAG	OPEN_REQ	1
CLIENT_PASSWORD_ TAG	OPEN_REQ	2
CLIENT_SIGNATURE_ TAG	OPEN_REQ, AGENT_STATE_EVENT	3
AGENT_EXTENSION_ TAG	OPEN_REQ, OPEN_CONF, AGENT_STATE_EVENT	4
AGENT_ID_TAG	OPEN_REQ, OPEN_CONF, AGENT_STATE_EVENT, SET_AGENT_STATE_EVENT	5
AGENT_ INSTRUMENT_ TAG	OPEN_REQ, OPEN_CONF, AGENT_STATE_EVENT, QUERY_AGENT_STATE_REQ, SET_AGENT_STATE_REQ, MAKE_CALL_REQ	6

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
TEXT_TAG	SYSTEM_EVENT, CLIENT_EVENT_REPORT_REQ	7
ANI_TAG	BEGIN_CALL_EVENT, CALL_ DATA_UPDATE_EVENT, CALL_ TRANSLATION_ROUTE_EVENT, SNAPSHOT_CALL_ CONF	8
UUI_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, CONSULTATION_ CALL_REQ, MAKE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF	9
DNIS_TAG	BEGIN_CALL_EVENT, CALL_ DATA_UPDATE_EVENT, CALL_ TRANSLATION_ROUTE_ EVENT, SNAPSHOT_CALL_ CONF	10
DIALED_NUMBER_ TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, CONSULTATION_ CALL_ REQ, MAKE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF	11
CED_TAG	BEGIN_CALL_EVENT, CALL_ DATA_UPDATE_EVENT, CALL_ TRANSLATION_ROUTE_ EVENT, SNAPSHOT_CALL_ CONF	12
CALL_VAR_1_TAG through CALL_VAR_10_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, CONSULTATION_ CALL_REQ, MAKE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF	13-22
CTI_CLIENT_ SIGNATURE_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, SNAPSHOT_CALL_CONF	23
CTI_CLIENT_ TIMESTAMP_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, SNAPSHOT_CALL_CONF	24
CONNECTION_ DEVID_ TAG	Any CALL EVENT message, most CLIENT CONTROL messages.	25
ALERTING_DEVID_ TAG	CALL_DELIVERED_EVENT	26
CALLING_DEVID_TAG	CALL_DELIVERED_EVENT, CALL_ESTABLISHED_EVENT, CALL_ORIGINATED_EVENT, CALL_QUEUED_EVENT	27

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
CALLED_DEVID_TAG	CALL_DELIVERED_EVENT, CALL_ESTABLISHED_EVENT, CALL_ORIGINATED_EVENT, CALL_DIVERTED_EVENT, CALL_QUEUED_EVENT, CALL_REACHED_NETWORK_ EVENT, CONSULTATION_ CALL_REQ, DEFLECT_CALL_ REQ, MAKE_CALL_REQ	28
LAST_REDIRECT_ DEVID_TAG	CALL_DELIVERED_EVENT, CALL_ESTABLISHED_EVENT, CALL_QUEUED_EVENT	29
ANSWERING_DEVID_ TAG	CALL_ESTABLISHED_EVENT	30
HOLDING_DEVID_ TAG	CALL_HELD_EVENT	31
RETRIEVING_DEVID_ TAG	CALL_RETRIEVED_EVENT	32
RELEASING_DEVID_ TAG	CALL_CONNECTION_ CLEARED_EVENT	33
FAILING_DEVID_TAG	CALL_FAILED_EVENT	34
PRIMARY_DEVID_ TAG	CALL_CONFERENCED_EVENT, CALL_TRANSFERRED_EVENT	35
SECONDARY_DEVID_ TAG	CALL_CONFERENCED_EVENT, CALL_TRANSFERRED_EVENT	36
CONTROLLER_ DEVID_ TAG	CALL_CONFERENCED_EVENT	37
ADDED_PARTY_ DEVID_TAG	CALL_CONFERENCED_EVENT	38
PARTY_CALLID_TAG	CALL_CONFERENCED_EVENT, CALL_TRANSFERRED_EVENT, CONFERENCE_CALL_CONF, TRANSFER_CALL_CONF	39
PARTY_DEVID_TYPE_ TAG	CALL_CONFERENCED_EVENT, CALL_TRANSFERRED_EVENT, CONFERENCE_CALL_CONF, TRANSFER_CALL_CONF	40
PARTY_DEVID_TAG	CALL_CONFERENCED_EVENT, CALL_TRANSFERRED_EVENT, CONFERENCE_CALL_CONF, TRANSFER_CALL_CONF	41
TRANSFERRING_ DEVID_TAG	CALL_TRANSFERRED_EVENT	42
TRANSFERRED_ DEVID_TAG	CALL_TRANSFERRED_EVENT	43
DIVERTING_DEVID_ TAG	CALL_DIVERTED_EVENT	44
QUEUE_DEVID_TAG	CALL_QUEUED_EVENT	45

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
CALL_WRAPUP_ DATA_ TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, SET_CALL_DATA_REQ, CONSULTATION_CALL_REQ, MAKE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF	46
NEW_CONNECTION_ DEVID_TAG	CALL_DATA_UPDATE_EVENT, CONFERENCE_CALL_CONF, CONSULTATION_CALL_CONF, MAKE_CALL_CONF, TRANSFER_CALL_CONF	47
TRUNK_USED_ DEVID_ TAG	CALL_REACHED_NETWORK_ EVENT	48
AGENT_PASSWORD_ TAG	SET_AGENT_STATE_REQ	49
ACTIVE_CONN_ DEVID_ TAG	ALTERNATE_CALL_REQ, CONFERENCE_CALL_REQ, CONSULTATION_CALL_REQ, RECONNECT_CALL_REQ, TRANSFER_CALL_REQ	50
FACILITY_CODE_TAG	CONSULTATION_CALL_REQ, MAKE_CALL_REQ, TRANSFER_CALL_REQ	51
OTHER_CONN_ DEVID_ TAG	ALTERNATE_CALL_REQ	52
HELD_CONN_DEVID_ TAG	CONFERENCE_CALL_REQ, RECONNECT_CALL_REQ, RETRIEVE_CALL_REQ, TRANSFER_CALL_REQ	53
(reserved)		54-55
CALL_CONN_ CALLID_ TAG	SNAPSHOT_CALL_CONF, SNAPSHOT_DEVICE_CONF	56
CALL_CONN_DEVID_ TYPE_TAG	SNAPSHOT_CALL_CONF, SNAPSHOT_DEVICE_CONF	57
CALL_CONN_DEVID_ TAG	SNAPSHOT_CALL_CONF, SNAPSHOT_DEVICE_CONF	58
CALL_DEVID_TYPE_ TAG	SNAPSHOT_CALL_CONF	59
CALL_DEVID_TAG	SNAPSHOT_CALL_CONF	60
CALL_DEV_CONN_ STATE_TAG	SNAPSHOT_CALL_CONF	61
SKILL_GROUP_ NUMBER_TAG	CALL_QUEUED_EVENT, CALL_DEQUEUED_EVENT, QUERY_AGENT_STATE_CONF	62
SKILL_GROUP_ID_ TAG	CALL_QUEUED_EVENT, CALL_DEQUEUED_EVENT, QUERY_AGENT_STATE_CONF	63
SKILL_GROUP_ PRIORITY_TAG	CALL_QUEUED_EVENT, CALL_DEQUEUED_EVENT, QUERY_AGENT_STATE_CONF	64

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
SKILL_GROUP_ STATE_ TAG	QUERY_AGENT_STATE_CONF	65
OBJECT_NAME_TAG	CLIENT_EVENT_REPORT	66
DTMF_STRING_TAG	SEND_DTMF_SIGNAL_REQ	67
POSITION_ID_TAG	SET_AGENT_STATE_REQ	68
SUPERVISOR_ID_TAG	SET_AGENT_STATE_REQ	69
LINE_HANDLE_TAG	QUERY_DEVICE_INFO_CONF	70
LINE_TYPE_TAG	QUERY_DEVICE_INFO_CONF	71
ROUTER_CALL_KEY_ DAY_TAG	BEGIN_CALL_EVENT, CALL_ DATA_UPDATE_EVENT, CALL_ TRANSLATION_ROUTE_EVENT, SNAPSHOT_CALL_ CONF	72
ROUTER_CALL_KEY_ CALLID_TAG	BEGIN_CALL_EVENT, CALL_ DATA_UPDATE_EVENT, CALL_ TRANSLATION_ROUTE_EVENT, SNAPSHOT_CALL_ CONF	73
ROUTER_CALL_KEY_SEQUENCE_NUM_TAG	AGENT_LEGACY_PRE_CALL_EVENT, BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TRANSLATION_ROUTE_EVENT, AGENT_PRE_CALL_EVENT, AGENT_PRE_CALL_ABORT_EVENT	110
(reserved)		74
CALL_STATE_TAG	SNAPSHOT_DEVICE_CONF	75
MONITORED_DEVID_TAG	MONITOR_START_REQ	76
AUTHORIZATION_ CODE_TAG	CONFERENCE_CALL_REQ, CONSULTATION_CALL_REQ, MAKE_CALL_REQ, MAKE_PREDICTIVE_CALL_REQ, TRANSFER_CALL_REQ	77
ACCOUNT_CODE_TAG	CONFERENCE_CALL_REQ, CONSULTATION_CALL_REQ, MAKE_CALL_REQ, MAKE_PREDICTIVE_CALL_REQ, TRANSFER_CALL_REQ	78
ORIGINATING_DEVID_TAG	MAKE_PREDICTIVE_CALL_REQ	79
ORIGINATING_LINE _ID_TAG	MAKE_PREDICTIVE_CALL_REQ	80
CLIENT_ADDRESS_ TAG	CLIENT_SESSION_OPENED_EVENT, CLIENT_SESSION_CLOSED_EVENT	81

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
NAMED_VARIABLE_ TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, AGENT_PRE_CALL_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, SET_CALL_DATA_REQ, CONFERENCE_CALL_REQ, CONSULTATION_CALL_REQ, MAKE_CALL_REQ, MAKE_PREDICTIVE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF, REGISTER_VARIABLES_REQ	82
NAMED_ARRAY_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, AGENT_PRE_CALL_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, SET_CALL_DATA_REQ, CONFERENCE_CALL_REQ, CONSULTATION_CALL_REQ, MAKE_CALL_REQ, MAKE_PREDICTIVE_CALL_REQ, TRANSFER_CALL_REQ, SNAPSHOT_CALL_CONF, REGISTER_VARIABLES_REQ	83
CALL_CONTROL_ TABLE_TAG	MAKE_CALL_REQ, MAKE_PREDICTIVE_CALL_REQ,	84
SUPERVISOR_ INSTRUMENT_TAG	SUPERVISE_CALL_REQ	85
ATC_AGENT_ID_TAG	AGENT_TEAM_CONFIG_EVENT	86
AGENT_FLAGS_TAG	AGENT_TEAM_CONFIG_EVENT	87
ATC_AGENT_STATE_ TAG	AGENT_TEAM_CONFIG_EVENT	88
ATC_STATE_ DURATION_TAG	AGENT_TEAM_CONFIG_EVENT	89
AGENT_ CONNECTION_DEVID_ TAG	SUPERVISE_CALL_REQ	90
SUPERVISOR_ CONNECTION_ DEVID_TAG	SUPERVISE_CALL_REQ,	91
LIST_TEAM_ID_TAG	LIST_AGENT_TEAM_CONF	92
DEFAULT_DEVICE_ PORT_ADDRESS_TAG	AGENT_DESK_SETTINGS_CONF	93
SERVICE_NAME_TAG	REGISTER_SERVICE_REQ	94
CUSTOMER_PHONE_ NUMBER_TAG	SET_CALL_DATA_REQ, CALL_DATA_UPDATE_EVENT	95
CUSTOMER_ ACCOUNT_NUMBER_TAG	SET_CALL_DATA_REQ, CALL_DATA_UPDATE_EVENT	96

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
APP_PATH_ID_TAG	OPEN_REQ	97
ROUTER_CALL_KEY_SEQUENCE_NUM_TAG	AGENT_LEGACY_PRE_CALL_EVENT, BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TRANSLATION_ROUTE_EVENT, AGENT_PRE_CALL_EVENT, AGENT_PRE_CALL_ABORT_EVENT	110
TRUNK_NUMBER_ TAG	CALL_DELIVERED_EVENT, CALL_ESTABLISHED_EVENT, CALL_REACHED_NETWORK_ EVENT	121
TRUNK_GROUP_ NUMBER_TAG	CALL_DELIVERED_EVENT, CALL_ESTABLISHED_EVENT, CALL_REACHED_NETWORK_EVENT	122
EXT_AGENT_STATE_ TAG	AGENT_STATE_EVENT	123
DEQUEUE_TYPE_TAG	CALL_DEQUEUED_EVENT	124
SENDING_ADDRESS_ TAG	RTP_STARTED_EVENT, RTP_STOPPED_EVENT	125
SENDING_PORT_TAG	RTP_STARTED_EVENT RTP_STOPPED_EVENT	126
Unused		127-128
MAX_QUEUED_TAG	CONFIG_SERVICE_EVENT, CONFIG_DEVICE_EVENT	129
QUEUE_ID_TAG	QUEUE_UPDATED_EVENT	130
CUSTOMER_ID_TAG	CONFIG_REQUEST_EVENT	131
SERVICE_SKILL_ TARGET_ID_TAG	CONFIG_SERVICE_EVENT	132
PERIPHERAL_NAME_ TAG	CONFIG_SERVICE_EVENT, CONFIG_SKILL_GROUP_EVENT, CONFIG_AGENT_EVENT, CONFIG_DIALED_NUMBER_ EVENT	133
DESCRIPTION_TAG	CONFIG_SERVICE_EVENT, CONFIG_SKILL_GROUP_EVENT, CONFIG_AGENT_EVENT, CONFIG_DIALED_NUMBER_EVENT	134
SERVICE_MEMBER_ ID_TAG	CONFIG_SKILL_GROUP_EVENT	135
SERVICE_MEMBER_ PRIORITY_TAG	CONFIG_SKILL_GROUP_EVENT	136
FIRST_NAME_TAG	CONFIG_AGENT_EVENT	137
LAST_NAME_TAG	CONFIG_AGENT_EVENT	138
SKILL_GROUP_TAG	CONFIG_AGENT_EVENT	139
AGENT_SKILL_ TARGET_ID_TAG	CONFIG_AGENT_EVENT	141
SERVICE_TAG	CONFIG_DIALED_NUMBER_ EVENT	142

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
Reserved		143-149
DURATION_TAG	AGENT_STATE_EVENT	150
Reserved		151-172
EXTENSION_TAG	CONFIG_SKILL_GROUP_EVENT, CONFIG_SERVICE_EVENT, CONFIG_AGENT_EVENT,CONFIG_DEVICE_EVENT	173
SERVICE_LEVEL_ THRESHOLD_TAG	CONFIG_SERVICE_EVENT	174
SERVICE_LEVEL_ TYPE_TAG	CONFIG_SERVICE_EVENT	175
CONFIG_PARAM_TAG	CONFIG_SKILL_GROUP_EVENT, CONFIG_SERVICE_EVENT	176
SERVICE_CONFIG_ KEY_TAG	CONFIG_KEY_EVENT, CONFIG_BEGIN_EVENT	177
SKILL_GROUP_ CONFIG_KEY_TAG	CONFIG_KEY_EVENT, CONFIG_BEGIN_EVENT	178
AGENT_CONFIG_ KEY_TAG	CONFIG_KEY_EVENT, CONFIG_BEGIN_EVENT	179
DEVICE_CONFIG_ KEY_TAG	CONFIG_KEY_EVENT, CONFIG_BEGIN_EVENT	180
Unused		181-182
RECORD_TYPE_TAG	CONFIG_AGENT_EVENT, CONFIG_DEVICE_EVENT, CONFIG_SERVICE_EVENT, CONFIG_SKILL_GROUP_EVENT	183
PERIPHERAL_ NUMBER_TAG	CONFIG_AGENT_EVENT, CONFIG_DEVICE_EVENT, CONFIG_SERVICE_EVENT, CONFIG_SKILL_GROUP_EVENT	184
AGENT_SKILL_ TARGET_ID_TAG	CONFIG_AGENT_EVENT	185
NUM_SERVICE_ MEMBERS_TAG	CONFIG_SERVICE_EVENT	186
SERVICE_MEMBER_ TAG	CONFIG_SERVICE_EVENT	187
SERVICE_PRIORITY_ TAG	CONFIG_SERVICE_EVENT	188
AGENT_TYPE_TAG	CONFIG_AGENT_EVENT	189
LOGIN_ID_TAG	CONFIG_AGENT_EVENT	190
NUM_SKILLS_TAG	CONFIG_AGENT_EVENT	191
SKILL_GROUP_SKILL_TARGET _ID_TAG	CONFIG_SKILL_GROUP_EVENT	192
SERVICE_ID_TAG	CONFIG_DEVICE_EVENT	193

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
AGENT_ID_LONG_ TAG	OPEN_REQ, OPEN_REQ, OPEN_REQ_CONF, AGENT_STATE_EVENT, RTP_STARTED_EVENT, RTP_STOPPED_EVENT, SUPERVISE_CALL_REQ, EMERGENCY_CALL_EVENT, USER_MESSAGE_REQ, SET_AGENT_STATE_REQ, SET_AGENT_STATE_CONF, QUERY_AGENT_STATE_REQ, QUERY_AGENT_STATE_CONF, AGENT_UPDATED_EVENT	194
DEVICE_TYPE_TAG	CONFIG_DEVICE_EVENT	195
Unused		196-197
ENABLE_TAG	ROUTE_REGISTER_EVENT	198
DEVICEID_TAG	ROUTE_REQUEST_EVENT	199
TIMEOUT_TAG	ROUTE_REQUEST_EVENT	200
CURRENT_ROUTE_ TAG	ROUTE_REQUEST_EVENT	201
SECONDARY_ CONNECTION_CALL_ ID	CALL_DELIVERED_EVENT	202
PRIORITY_QUEUE_ NUMBER_TAG	CALL_QUEUED_EVENT	203
TEAM_NAME_TAG	TEAM_CONFIG_EVENT	204
MEMBER_TYPE_TAG	TEAM_CONFIG_EVENT	205
EVENT_DEVICE_ID_ TAG	SYSTEM_EVENT	206
LOGIN_NAME_TAG (V11)	CONFIG_AGENT_EVENT	207
PERIPHERAL_ID_TAG (V11)	CONFIG_AGENT_EVENT, CONFIG_SERVICE_EVENT, CONFIG_SKILL_GROUP_EVENT, CONFIG_DEVICE_EVENT	208
CALL_TYPE_KEY_ CONFIG_TAG (V11)	CONFIG_KEY_EVENT	209
CALL_TYPE_ID_TAG (V11)	CONFIG_CALL_TYPE_EVENT	210
CUSTOMER_ DEFINITION_ID_TAG (V11)	CONFIG_CALL_TYPE_EVENT	211
ENTERPRISE_NAME_ TAG (V11)	CONFIG_CALL_TYPE_EVENT	212
CUR_PERIPHERAL_ NUMBER_TAG	CONFIG_SKILL_GROUP_EVENT, CONFIG_CALL_TYPE_EVENT	213
CUR_LOGIN_ID	CONFIG_AGENT_EVENT	214

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
ANI_II_TAG	BEGIN_CALL_EVENT, CALL_TRANSLATION_ROUTE_ EVENT, CALL_DATA_UPDATE, CALL_DELIVERED_EVENT, AGENT_PRE_CALL_EVENT, SET_CALL_DATA_REQ, SNAPSHOT_CALL_REQ, ROUTE_REQUEST_EVENT	215
MR_DOMAIN_ID_TAG	CONFIG_SKILL_GROUP_EVENT, CONFIG_SERVICE_EVENT	216
CTIOS_CIL_CLIENT_ ID_TAG	SET_CALL_DATA_REQ, ALTERNATE_CALL_REQ, ANSWER_CALL_REQ, CLEAR_CALL_REQ, CLEAR_CONNECTION_REQ, DEFLECT_CALL_REQ, HOLD_CALL_REQ, RECONNECT_CALL_REQ, RETRIEVE_CALL_REQ, SEND_DTMF_SIGNAL_REQ, CHANGE_MONITOR_MASK_REQ, USER_MESSAGE_REQ, SESSION_MONITOR_START_REQ, SESSION_MONITOR_STOP_REQ, MONITOR_AGENT_TEAM_START_REQ, MONITOR_AGENT_TEAM_ STOP_REQ, FAILURE_CONF, CONTROL_FAILURE_CONF	217
SILENT_MONITOR_ STATUS_TAG	SNAPSHOT_DEVICE_CONF	218
REQUESTING_ DEVICE_ID_TAG	CALL_CLEAR_CONNECTION_REQ	219
REQUESTING_ DEVICE_ID_ TYPE_TAG	CALL_CLEAR_CONNECTION_REQ	220
PRE_CALL_INVOKE_ ID_TAG	SET_APP_DATA	221
ENTERPRISE_ QUEUE_TIME		222
CALL_REFERENCE_ ID_TAG	BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, CALL_TERMINATION_EVNT, SNAPSHOT_CALL_CONF	223
MULTI_LINE_AGENT_ CONTROL_TAG	OPEN_CONF	224
NETWORK_ CONTROLLED_TAG	ROUTE_SELECT_EVENT	225

Table 6-4 Tag Values (continued)

Floating Field Tag	Using Messages	Value
CLIENT_ADDRESS IPV6_TAG	RTP_STARTED_EVENT, RTP_ STOPPED_EVENT, CLIENT_ SESSION_OPENED_EVENT, CLIENT_SESSION_CLOSED_ EVENT, EMERGENCY_CALL_REQ, EMERGENCY_CALL_CONF, EMERGENCY_CALL_EVENT,, START_RECORDING_REQ, START_RECORDING_CONF, STOP_RECORDING_REQ, STOP_RECORDING_CONF,	226
SENDING_ADDRESS_ IPV6_TAG	RTP_STARTED_EVENT, RTP_STOPPED_EVENT	227
NUM_PERIPHERALS_ TAG	OPEN_CONF	228
COC_CONNECTION_ CALL_ID_TAG	CALL_SERVICE_INITIATED_ EVENT, ROUTE_REQUEST_EVENT, SNAPSHOT _CALL_CONF	229
COC_CONNECTION_ DEVICE_ID_TYPE_ TAG	CALL_SERVICE_INITIATED_ EVENT, ROUTE_REQUEST_EVENT, SNAPSHOT _CALL_CONF	230
COC_CONNECTION_ DEVICE_ID_TAG	CALL_SERVICE_INITIATED_ EVENT, ROUTE_REQUEST_EVENT, SNAPSHOT _CALL_CONF	231
CALL_ORIGINATED_ FROM_TAG	SET_CALL_DATA_REQ	232
SET_APPDATA_CALLID_TAG		233
CLIENT_SHARE_KEY_TAG		234
AGENT_TEAM_NAME_TAG	AGENT_TEAM_CONFIG_EVENT	243
DIRECTION_TAG	AGENT_STATE_EVENT	244

AgentState Values

Table 6-5 shows the agent state values that may appear in the QUERY_AGENT_STATE_CONF messages.

Table 6-5 AgentState Values

State Name	Description	Value
AGENT_STATE_ LOGIN	The agent has logged on to the ACD. It does not necessarily indicate that the agent is ready to accept calls.	0
AGENT_STATE_ LOGOUT	The agent has logged out of the ACD and cannot accept any additional calls.	1
AGENT_STATE_ NOT_ READY	The agent is unavailable for any call work.	2

Table 6-5 AgentState Values (continued)

State Name	Description	Value
AGENT_STATE_ AVAILABLE	The agent is ready to accept a call.	3
AGENT_STATE_ TALKING	The agent is currently talking on a call (inbound, outbound, or inside).	4
AGENT_STATE_ WORK_NOT_READY	The agent is performing after call work, but will not be ready to receive a call when completed.	5
AGENT_STATE_ WORK_ READY	The agent is performing after call work, and will be ready to receive a call when completed.	6
AGENT_STATE_ BUSY_ OTHER	The agent is busy performing a task associated with another active SkillGroup.	7
AGENT_STATE_ RESERVED	The agent is reserved for a call that will arrive at the ACD shortly.	8
AGENT_STATE_ UNKNOWN	The agent state is currently unknown.	9
AGENT_STATE_ HOLD	The agent currently has all calls on hold.	10
AGENT_STATE_ ACTIVE	The agent state is currently active	11
AGENT_STATE_ PAUSED	The agent state is currently paused	12
AGENT_STATE_ INTERRUPTED	The agent state is currently interrupted	13
AGENT_STATE_NOT_ACTIVE	The agent state is currently not active	14

PGStatusCode Values

Table 6-6 shows the PGStatusCode values that may be included in the SYSTEM_EVENT message.

Table 6-6 PGStatusCode Values

PGStatus	Description	Mask Value
PGS_OPC_DOWN	Communication lost between the CTI Server and the PG's Open Peripheral Controller (OPC) process. No call or agent state event messages can be sent due to this condition.	0x00000001
PGS_CC_DOWN	Communication lost between the PG and the Unified CCE Central Controller. Primarily affects translation routing and post-routing, other call and agent event messages can still be sent.	0x00000002
PGS_PERIPHERAL_OFFLINE	One or more of the peripherals monitored by the PG are offline.	0x00000004

Table 6-6 PGStatusCode Values (continued)

PGStatus	Description	Mask Value
PGS_CTI_SERVER_OFFLINE	Loss of communication between the CTI Server and the CTI Client. This status code is not reported by a software layer between the CTI Server and the client application.	0x00000008
PGS_LIMITED_FUNCTION	This status code may be reported by a software layer between the CTI Server and the client application when PGS_CTI_SERVER_ OFFLINE is true to indicate that limited local call control is possible.	0x00000010

PeripheralType Values

Table 6-7 shows the PeripheralType values that may be included in the Client Events service messages.

Table 6-7 PeripheralType Values

Peripheral Type	Description	Value
PT_NONE	Not Applicable	0xffff
PT_ASPECT	Aspect Call Center ACD	1
PT_MERIDIAN	Northern Telecom Meridian ACD	2
PT_G2	Lucent G2	3
PT_DEFINITY_ECS_ NON_EAS	Lucent DEFINITY ECS (without Expert Agent Selection)	4
PT_DEFINITY_ECS_ EAS	Lucent DEFINITY ECS (with Expert Agent Selection)	5
PT_GALAXY	Rockwell Galaxy ACD	6
PT_SPECTRUM	Rockwell Spectrum ACD	7
PT_VRU	VRU (event type interface)	8
PT_VRU_POLLED	VRU (polled type interface)	9
PT_DMS100	Northern Telecom DMS-100, DMS-500, or SL-10010	10
PT_SIEMENS_9006	Siemens Hicom ACD (9006)	11
PT_SIEMENS_9005	Siemens 9751 CBX Release 9005 (Rolm 9005)	12
PT_ALCATEL	Alcatel 4400 ACD	13
PT_NEC_NEAX_2x00	NEC NEAX 2400, NEAX 7400, or APEX 7600 ACD	14
PT_ ACP_1000	Ericsson ACP1000	15
PT_ SYMPOSIUM	Northern Telecom Symposium	16
PT_ENTERPRISE_ AGENT	*Enterprise Agent* Manager	17
PT_MD110	Ericsson MD-110	18
PT_MEDIA_ROUTING	Media Routing	19
PT_GENERIC	Generic	20
PT_ACMI_CRS	A Gateway PG over UCCX	21

Table 6-7 PeripheralType Values (continued)

Peripheral Type	Description	Value
PT_ACMI_IPCC	A Gateway PG over Unified CCE or Unified CCX	22
PT_SIMPLIFIED_IPCC	A system using the System PG	23
PT_ARS	A system using the ARS PG	24
PT_ACMI_ERS	A system using the ERS PG	25
PT_ACMI_EXPERT_ADVISOR	A Gateway PG over Expert Advisor	26
{reserved}		27

LocalConnectionState Values

Table 6-8 shows the LocalConnectionState values.

Table 6-8 LocalConnectionState values

LocalConnectionState	Description	Value
LCS_NONE	Not applicable	0xffff
LCS_NULL	No relationship between call and device.	0
LCS_INITIATE	Device requesting service (“dialing”).	1
LCS_ALERTING	Device is alerting (“ringing”).	2
LCS_CONNECT	Device is actively participating in the call.	3
LCS_HOLD	Device is inactively participating in the call.	4
LCS_QUEUED	Device is stalled attempting to connect to a call, or a call is stalled attempting to connect to a device.	5
LCS_FAIL	A device-to-call or call-to-device connection attempt has been aborted.	6

EventCause Values

Table 6-9 shows the EventCause values.

Table 6-9 EventCause Values

EventCause	Value
CEC_NONE	0xffff
CEC_ACTIVE_MONITOR	1
CEC_ALTERNATE	2
CEC_BUSY	3
CEC_CALL_BACK	4
CEC_CALL_CANCELLED	5
CEC_CALL_FORWARD_ALWAYS	6
CEC_CALL_FORWARD_BUSY	7

Table 6-9 EventCause Values (continued)

EventCause	Value
CEC_CALL_FORWARD_NO_ANSWER	8
CEC_CALL_FORWARD	9
CEC_CALL_NOT_ANSWERED	10
CEC_CALL_PICKUP	11
CEC_CAMP_ON	12
CEC_DEST_NOT_OBTAINABLE	13
CEC_DO_NOT_DISTURB	14
CEC_INCOMPATIBLE_DESTINATION	15
CEC_INVALID_ACCOUNT_CODE	16
CEC_KEY_CONFERENCE	17
CEC_LOCKOUT	18
CEC_MAINTENANCE	19
CEC_NETWORK_CONGESTION	20
CEC_NETWORK_NOT_OBTAINABLE	21
CEC_NEW_CALL	22
CEC_NO_AVAILABLE_AGENTS	23
CEC_OVERRIDE	24
CEC_PARK	25
CEC_OVERFLOW	26
CEC_RECALL	27
CEC_REDIRECTED	28
CEC_REORDER_TONE	29
CEC_RESOURCES_NOT_AVAILABLE	30
CEC_SILENT_MONITOR	31
CEC_TRANSFER	32
CEC_TRUNKS_BUSY	33
CEC_VOICE_UNIT_INITIATOR	34
CEC_TIME_OUT	35
CEC_NEW_CALL_INTERFLOW	36
CEC_SIMULATION_INIT_REQUEST	37
CEC_SIMULATION_RESET_REQUEST	38
CEC_CTI_LINK_DOWN	39
CEC_PERIPHERAL_RESET_REQUEST	40
CEC_MD110_CONFERENCE_TRANSFER	41
CEC_REMAINS_IN_Q	42
CEC_SUPERVISOR_ASSIST	43

Table 6-9 EventCause Values (continued)

EventCause	Value
CEC_EMERGENCY_CALL	44
CEC_SUPERVISOR_CLEAR	45
CEC_SUPERVISOR_MONITOR	46
CEC_SUPERVISOR_WHISPER	47
CEC_SUPERVISOR_BARGE_IN	48
CEC_SUPERVISOR_INTERCEPT	49
CEC_CALL_PARTY_UPDATE_IND	50
CEC_CONSULT	51
CEC_NIC_CALL_CLEAR	52

Table 6-10 Extended Call Cleared Event Causes

EventCause	Value
CECX_ABAND_NETWORK	1001
CECX_ABAND_LOCAL_QUEUE	1002
CECX_ABAND_RING	1003
CECX_ABAND_DELAY	1004
CECX_ABAND_INTERFLOW	1005
CECX_ABAND_AGENT_TERMINAL	1006
CECX_SHORT	1007
CECX_BUSY	1008
CECX_FORCED_BUSY	1009
CECX_DROP_NO_ANSWER	1010
CECX_DROP_BUSY	1011
CECX_DROP_REORDER	1012
CECX_DROP_HANDLED_PRIMARY_ROUTE	1013
CECX_DROP_HANDLED_OTHER	1014
CECX_REDIRECTED	1015
CECX_CUT_THROUGH	1016
CECX_INTRAFLOW	1017
CECX_INTERFLOW	1018
CECX_RING_NO_ANSWER	1019
CECX_INTERCEPT_REORDER	1020
CECX_INTERCEPT_DENIAL	1021
CECX_TIME_OUT	1022
CECX_VOICE_ENERGY	1023
CECX_NONCLASSIFIED_ENERGY_DETECT	1024

Table 6-10 Extended Call Cleared Event Causes (continued)

EventCause	Value
CECX_NO_CUT_THROUGH	1025
CECX_UABORT	1026
CECX_FAILED_SOFTWARE	1027
CECX_BLIND_TRANSFER	1028
CECX_ANNOUNCED_TRANSFER	1029
CECX_CONFERENCED	1030
CECX_DUPLICATE_TRANSFER	1031
CECX_UNMONITORED_DEVICE	1032
CECX_ANSWERING_MACHINE	1033
CECX_NETWORK_BLIND_TRANSFER	1034
CECX_TASK_ABANDONED_IN_ROUTER	1035
CECX_TASK_ABANDONED_BEFORE_OFFERED	1036
CECX_TASK_ABANDONED_WHILE_OFFERED	1037
CECX_NORMAL_END_TASK	1038
CECX_CANT_OBTAIN_TASK_ID	1039
CECX_AGENT_LOGGED_OUT_DURING_TASK	1040
CECX_MAX_TASK_LIFETIME_EXCEEDED	1041
CECX_APPLICATION_PATH_WENT_DOWN	1042
CECX_ICM_ROUTING_COMPLETE	1043
CECX_ICM_ROUTING_DISABLED	1044
CECX_APPL_INVALID_MRD_ID	1045
CECX_APPL_INVALID_DIALOGUE_ID	1056
CECX_APPL_DUPLICATE_DIALOGUE_ID	1047
CECX_APPL_INVALID_INVOKE_ID	1048
CECX_APPL_INVALID_SCRIPT_SELECTOR	1049
CECX_APPL_TERMINATE_DIALOGUE	1050
CECX_TASK_ENDED_DURING_APP_INIT	1051
CECX_CALLED_PARTY_DISCONNECTED	1052
CECX_PARTIAL_CALL	1053
CECX_DROP_NETWORK_CONSULT	1054
CECX_NETWORK_CONSULT_TRANSFER	1055
CECX_NETWORK_CONFERENCE	1056
CECX_ABAND_NETWORK_CONSULT	1057

DeviceIDType Values

Table 6-11 shows the DeviceIDType values.

Table 6-11 DeviceIDType Values

Device ID Type	Description	Value
DEVID_NONE	No device ID is provided.	0xffff
DEVID_DEVICE_IDENTIFIER	The provided device ID identifies a peripheral teleset (extension).	0
DEVID_TRUNK_IDENTIFIER	The provided device ID identifies a peripheral Trunk.	70
DEVID_TRUNK_GROUP_ IDENTIFIER	The provided device ID identifies a peripheral Trunk Group.	71
DEVID_IP_PHONE_MAC_ IDENTIFIER	The provided device ID identifiers the MAC address of an IP phone (Unified CCX ONLY)	72
DEVID_CTI_PORT	The provided device ID identifiers a CTI PORT (Unified CCX ONLY)	73
DEVID_ROUTE_POINT	The provided device ID identifies a ROUTE POINT	74
DEVID_EXTERNAL	The provided device ID is an ANI number or some other external identifier.	75
DEVID_AGENT_DEVICE	The provided device ID is the ID of an AGENT Device (phone)	76
DEVID_QUEUE	The provided device ID is the ID of a QUEUE	77
DEVID_NON_ACD_DEVICE_ IDENTIFIER	The provided device ID identifies a peripheral telset (extension) that is classified as being a non-ACD extension.	78
DEVID_SHARED_DEVICE_ IDENTIFIER	The provided device ID identifies a peripheral telset (extension) that is classified as being a shared line (0 or more telsets share this extension).	79

CallType Values

Table 6-12 shows the CallType values.

Table 6-12 CallType Values

CallType	Description	Value
CALLTYPE_ACD_IN	Inbound ACD call.	1
CALLTYPE _PREROUTE_ ACD_IN	Translation routed inbound ACD call.	2

Table 6-12 CallType Values (continued)

CallType	Description	Value
CALLTYPE _PREROUTE_ DIRECT_AGENT	Translation routed call to a specific agent.	3
CALLTYPE _TRANSFER_IN	Transferred inbound call.	4
CALLTYPE _OVERFLOW_IN	Overflowed inbound call.	5
CALLTYPE _OTHER_IN	Inbound call.	6
CALLTYPE _AUTO_OUT	Automatic out call.	7
CALLTYPE _AGENT_OUT	Agent out call.	8
CALLTYPE _OUT	Outbound call.	9
CALLTYPE _AGENT_INSIDE	Agent inside call.	10
CALLTYPE _OFFERED	Blind transferred call.	11
CALLTYPE _CONSULT	Consult call.	12
CALLTYPE _CONSULT_ OFFERRED	Announced transferred call.	13
CALLTYPE _CONSULT_ CONFERENCE	Conferenced consult call.	14
CALLTYPE _CONFERENCE	Conference call.	15
CALLTYPE_UNMONITORED	Inside or outbound call for which no call events will be received.	16
CALLTYPE_PREVIEW	Automatic out call in which the agent is given the option to proceed to dial a contact.	17
CALLTYPE_RESERVATION	Call made to reserve an agent for some other function.	18
CALLTYPE_ASSIST	Call to supervisor for assistance.	19
CALLTYPE_EMERGENCY	Emergency call.	20
CALLTYPE_SUPERVISOR_ MONITOR	Supervisor silently monitoring call.	21
CALLTYPE_SUPERVISOR_ WHISPER	Supervisor monitoring call, agent can hear supervisor.	22
CALLTYPE_SUPERVISOR_ BARGEIN	Supervisor conferenced into call.	23
CALLTYPE_SUPERVISOR_ INTERCEPT	Supervisor replaces agent on call.	24
CALLTYPE_TASK_ROUTED_ BY_ICM	Task routed by Unified CCE	25
CALLTYPE_TASK_ROUTED_ BY_APPLICATION	Task routed by application	26
CALLTYPE_NON_ACD	Agent call that is a non-ACD routed call.	27

ConnectionDeviceIDType Values

Table 6-13 shows the possible ConnectionDeviceIDType values.

Table 6-13 ConnectionDeviceIDType Values

ConnectionDevice IDType	Description	Value
CONNECTION_ID_ NONE	No ConnectionDeviceID is provided.	0xffff
CONNECTION_ID_ STATIC	The ConnectionDeviceID value is stable over time (between calls).	0
CONNECTION_ID_ DYNAMIC	The ConnectionDeviceID value is dynamic and may change between calls.	1

LineType Values

Table 6-14 shows the possible LineType values.

Table 6-14 LineType Values

LineType	Description	Value
LINETYPE_INBOUND_ ACD	Line used for inbound ACD calls.	0
LINETYPE_OUTBOUND_ACD	Line used for outbound ACD calls.	1
LINETYPE_INSIDE	Line used for inside calls.	2
LINETYPE_UNKNOWN	Line used for any purpose.	3
LINETYPE_SUPERVISOR	Line used for supervisor calls.	4
LINETYPE_MESSAGE	Line used for voice messages.	5
LINETYPE_HELP	Line used for assistance.	6
LINETYPE_OUTBOUND	Line used for outbound non-ACD calls.	7
LINETYPE_DID	Line used for direct inward dialed calls.	8
LINETYPE_SILENT_ MONITOR	Line used for silent monitor	9
LINETYPE_NON_ACD_IN	Line used for inbound non-ACD calls	10
LINETYPE_NON_ACD_OUT	Line used for outbound non-ACD calls.	11

ControlFailureCode Values

Table 6-15 shows the possible ControlFailureCode values.

Table 6-15 ControlFailureCode Values

FailureCode	Description	Value
CF_GENERIC_UNSPECIFIED	An error has occurred that is not one of the following error types.	0
CF_GENERIC_OPERATION	An operation error occurred (no specific details available).	1

Table 6-15 ControlFailureCode Values (continued)

FailureCode	Description	Value
CF_REQUEST_ INCOMPATIBLE_WITH_ OBJECT	The request is not compatible with the object.	2
CF_VALUE_OUT_OF_ RANGE	The parameter has a value that is not in the range defined for the server.	3
CF_OBJECT_NOT_KNOWN	The parameter has a value that is not known to the server.	4
CF_INVALID_CALLING_ DEVICE	The calling device is invalid.	5
CF_INVALID_CALLED_ DEVICE	The called device is invalid	6
CF_INVALID_FORWARDING_ DESTINATION	The forwarding destination device is invalid.	7
CF_PRIVILEGE_VIOLATION_ ON_SPECIFIED_DEVICE	The specified device is not authorized for the service.	8
CF_PRIVILEGE_VIOLATION_ ON_CALLED_DEVICE	The called device is not authorized for the service.	9
CF_PRIVILEGE_VIOLATION_ ON_CALLING_DEVICE	The calling device is not authorized for the service.	10
CF_INVALID_CSTA_CALL_ IDENTIFIER	The call identifier is invalid.	11
CF_INVALID_CSTA_DEVICE_ IDENTIFIER	The device identifier is invalid.	12
CF_INVALID_CSTA_ CONNECTION_IDENTIFIER	The connection identifier is invalid.	13
CF_INVALID_DESTINATION	The request specified a destination that is invalid.	14
CF_INVALID_FEATURE	The request specified a feature that is invalid.	15
CF_INVALID_ALLOCATION_ STATE	The request specified an allocation state that is invalid.	16
CF_INVALID_CROSS_REF_ID	The request specified a cross- reference ID that is not in use at this time.	17
CF_INVALID_OBJECT_TYPE	The request specified an invalid object type.	18
CF_SECURITY_VIOLATION	Security error (no specific details available).	19
CF_GENERIC_STATE_ INCOMPATIBILITY	The request is not compatible with the condition of a related device.	21
CF_INVALID_OBJECT_STATE	The object is in the incorrect state for the request.	22
CF_INVALID_CONNECTION_ ID_FOR_ACTIVE_CALL	The active connection ID in the request is invalid.	23
CF_NO_ACTIVE_CALL	There is no active call for the request.	24
CF_NO_HELD_CALL	There is no held call for the request.	25
CF_NO_CALL_TO_CLEAR	There is no call associated with the given connection ID.	26

Table 6-15 ControlFailureCode Values (continued)

FailureCode	Description	Value
CF_NO_CONNECTION_TO_ CLEAR	There is no call connection for the given connection ID.	27
CF_NO_CALL_TO_ANSWER	There is no alerting call to be answered.	28
CF_NO_CALL_TO_ COMPLETE	There is no active call to be completed.	29
CF_GENERIC_SYSTEM_ RESOURCE_AVAILABILITY	The request failed due to lack of system resources (no specific details available).	31
CF_SERVICE_BUSY	The service is temporarily unavailable.	32
CF_RESOURCE_BUSY	An internal resource is busy.	33
CF_RESOURCE_OUT_OF_ SERVICE	The service requires a resource that is out of service.	34
CF_NETWORK_BUSY	The server sub-domain is busy.	35
CF_NETWORK_OUT_OF_ SERVICE	The server sub-domain is out of service.	36
CF_ OVERALL_MONITOR_ LIMIT_EXCEEDED	The request would exceed the server's overall resource limits.	37
CF_CONFERENCE_MEMBER_ LIMIT_EXCEEDED	The request would exceed the server's limit on the number of conference members.	38
CF_ GENERIC_SUBSCRIBED_ RESOURCE_AVAILABILITY	The request failed due to lack of purchased or contracted resources (no specific details available).	41
CF_ OBJECT_MONITOR_ LIMIT_EXCEEDED	The request would exceed the server's specific resource limits.	42
CF_ EXTERNAL_TRUNK_ LIMIT_EXCEEDED	The request would exceed the limit of external trunks.	43
CF_ OUTSTANDING_ REQUEST_LIMIT_EXCEEDED	The request would exceed the limit of outstanding requests.	44
CF_GENERIC_ PERFORMANCE_ MANAGEMENT	The request failed as a performance management mechanism (no specific details available).	51
CF_PERFORMANCE_LIMIT_ EXCEEDED	The request failed because a performance management limit was exceeded.	52
CF_ SEQUENCE_NUMBER_ VIOLATED	The server has detected an error in the sequence number of the operation.	61
CF_ TIME_STAMP_ VIOLATED	The server has detected an error in the time stamp of the operation.	62
CF_ PAC_VIOLATED	The server has detected an error in the PAC of the operation.	63
CF_ SEAL_VIOLATED	The server has detected an error in the Seal of the operation.	64
CF_ GENERIC_UNSPECIFIED_ REJECTION	The request has been rejected (no specific details available).	70
CF_ GENERIC_OPERATION_ REJECTION	The requested operation has been rejected (no specific details available).	71

Table 6-15 ControlFailureCode Values (continued)

FailureCode	Description	Value
CF_ DUPLICATE_ INVOCATION_REJECTION	The request duplicated another request for the same service.	72
CF_ UNRECOGNIZED_ OPERATION_REJECTION	The request specified an unrecognized operation.	73
CF_MISTYPED_ARGUMENT_ REJECTION	The request contained a parameter of the wrong type for the requested operation.	74
CF_ RESOURCE_LIMITATION_ REJECTION	The request would have exceeded a resource limitation.	75
CF_ ACS_HANDLE_ TERMINATION_REJECTION	The request specified an ACS handle that is no longer in use.	76
CF_ SERVICE_ TERMINATION_REJECTION	The request failed because the required service has been terminated.	77
CF_ REQUEST_TIMEOUT_ REJECTION	The request failed because a timeout limit was exceeded.	78
CF_REQUESTS_ON_DEVICE_ EXCEEDED_REJECTION	The request would have exceeded the limits of the device.	79

Table 6-16 Extended Control Failure Codes

FailureCode	Description	Value
CF_INVALID_AGENT_ID_ SPECIFIED	The request specified an invalid AgentID.	256
CF_INVALID_PASSWORD_ SPECIFIED	The request specified an invalid agent password.	257
CF_INVALID_AGENT_ID_ OR_PASSWORD_SPECIFIED	The request specified an invalid AgentID and/or invalid agent password.	258
CF_SPECIFIED_AGENT_ ALREADY_SIGNED_ON	The request failed because the specified agent is already logged in.	259
CF_INVALID_LOGON_ DEVICE_SPECIFIED	The request specified an invalid logon device.	260
CF_INVALID_ANSWERING_ DEVICE_SPECIFIED	The request specified an invalid answering device.	261
CF_INVALID_SKILL_ GROUP_SPECIFIED	The request specified an invalid agent skill group.	262
CF_INVALID_CLASS_OF_ SERVICE_SPECIFIED	The request specified an invalid class of service.	263
CF_INVALID_TEAM_ SPECIFIED	The request specified an invalid team	264
CF_INVALID_AGENT_ WORKMODE	The request specified an invalid agent work mode.	265
CF_INVALID_AGENT_ REASON_CODE	The request specified an invalid agent reason code.	266

Table 6-16 Extended Control Failure Codes (continued)

FailureCode	Description	Value
CF_ADJUNCT_SWITCH_ COMM_ERROR	A communication error occurred on the datalink between the Unified CCE and the ACD.	267
CF_AGENT_NOT_PARTY_ ON_CALL	The specified agent is not a party on the indicated call.	268
CF_INTERNAL_ PROCESSING_ERROR	An internal error occurred in the ACD while processing the request.	269
CF_TAKE_CALL_CONTROL_ REJECTION	The ACD refused an Unified CCE request to take control of a call.	270
CF_TAKE_DOMAIN_ CONTROL_REJECTION	The ACD refused an Unified CCE request to take control of a domain.	271
CF_REQUESTED_SERVICE_ NOT_REGISTERED	The Unified CCE is not registered on the ACD for the requested service.	272
CF_INVALID_CONSULT_ TYPE	The consult type is invalid	273
CF_ANSMAP_OR_ ADPARAM_FIELD_NOT_VALID	The Ansmap or Asparam field are not valid	274
CF_INVALID_CALL_ CONTROL_TABLE_ SPECIFIED	The call control table is invalid	275
CF_INVALID_DIGITS_ RNATIMEOUT_AMSDELAY_ OR_COUNTRY		276
CF_ANSWER_DETECT_ PORT_UNAVAILABLE		277
CF_VIRTUAL_AGENT_ UNAVAILABLE		278
CF_TAKEBACK_N_XFER_ ROUTE_END		279
CF_WRAPUP_DATA_ REQUIRED		280
CF_REASON_CODE_ REQUIRED		281
CF_INVALID_TRUNK_ID_ SPECIFIED		282
CF_SPECIFIED_EXTENSION_ ALREADY_IN_USE		283
CF_ARBITRARY_CONF_OR_ XFER_NOT_SUPPORTED		284
CF_NETWORK_TRANSFER_OR_ CONSULT		285
CF_NETWORK_TRANSFER_OR_ CONSULT_FAILED		286
CF_DEVICE_RESTRICTED		287
CF_LINE_RESTRICTED		288

Table 6-16 Extended Control Failure Codes (continued)

FailureCode	Description	Value
CF_AGENT_ACCOUNT_ LOCKED_OUT		289
CF_DROP_ANY_PARTY_NOT_ ENABLED_CTI		290
CF_MAXIMUM_LINE_LIMIT_ EXCEEDED		291
CF_SHARED_LINES_NOT_ SUPPORTED		292
CF_EXTENSION_NOT_UNIQUE		293
CF_UNKNOWN_ INTERFACE_ CTRLR_ID	The Interface Controller ID is unknown.	1001
CF_INVALID_INTERFACE_ CTRLR_TYPE	The Interface Controller type is invalid.	1002
CF_SOFTWARE_REV_NO_ SUPPORTED	The current software revision is not supported.	1003
CF_UNKNOWN_PID	The PeripheralID is unknown.	1004
CF_INVALID_TABLE_ SPECIFIED	An invalid table was specified.	1005
CF_PD_SERVICE_INACTIVE	The peripheral data service is not active.	1006
CF_UNKNOWN_ROUTING_ CLIENT_ID	The RoutingClientID is unknown.	1007
CF_RC_SERVICE_ INACTIVATE	The routing client service is not active.	1008
CF_INVALID_DIALED_ NUMBER	The dialed number is invalid.	1009
CF_INVALID_PARAMETER	A parameter in the request is invalid.	1010
CF_UNKNOWN_ROUTING_ PROBLEM	An unspecified error occurred during routing.	1011
CF_UNSUPPORTED_PD_ MESSAGE_REVISION	The requested peripheral data service protocol version is not supported.	1012
CF_UNSUPPORTED_RC_ MESSAGE_REVISION	The requested routing client service protocol version is not supported.	1013
CF_UNSUPPORTED_IC_ MESSAGE_REVISION	The requested interface controller service protocol version is not supported.	1014
CF_RC_SERVICE_ INACTIVATE_PIM	The peripheral interface is not active.	1015
CF_AGENT_GREETING_CONTRO L_OPERATION_FAILURE	This error occurs if AGENT_GREETING_CONTROL_REQ request fails. Notes: All detailed errors are defined as Peripheral Error Codes.	1016

AllocationState Values

Table 6-17 shows the AllocationState values.

Table 6-17 AllocationState Values

AllocationState	Description	Value
ALLOC_CALL_ DELIVERED	Connect call to originating device when call is delivered (alerting).	0
ALLOC_CALL_ ESTABLISHED	Connect call to originating device when call is established (answered).	1

ForwardType Values

Table 6-18 shows the ForwardType values.

Table 6-18 FowardType Values

ForwardType	Description	Value
FWT_IMMEDIATE	Forward all calls.	0
FWT_BUSY	Forward only when busy.	1
FWT_NO_ANS	Forward after no answer.	2
FWT_BUSY_INT	Forward on busy for internal calls.	3
FWT_BUSY_EXT	Forward on busy for external calls.	4
FWT_NO_ANS_INT	Forward after no answer for internal calls.	5
FWT_NO_ANS_EXT	Forward after no answer for external calls.	6

TypeOfDevice Values

Table 6-19 shows the TypeOfDevice values.

Table 6-19 TypeOfDevice Values

TypeOfDevice	Description	Value
DEVT_STATION	A traditional telephone device, consisting of one or more buttons and one or more lines.	0
DEVT_LINE	A communications interface to one or more stations.	1
DEVT_BUTTON	An instance of a call manipulation point at an individual station.	2
DEVT_ACD	A mechanism that distributes calls.	3
DEVT_TRUNK	A device used to access other switching domains.	4
DEVT_OPERATOR	A device that interacts with a call party to assist in call setup or provide other telecommunications service.	5
DEVT_STATION_ GROUP	Two or more stations used interchangeably or addressed identically.	16

Table 6-19 TypeOfDevice Values (continued)

TypeOfDevice	Description	Value
DEVT_LINE_GROUP	A set of communications interfaces to one or more stations.	17
DEVT_BUTTON_ GROUP	Two or more instances of a call manipulation point at an individual station.	18
DEVT_ACD_GROUP	A call distributor device as well as the devices to which it distributes calls.	19
DEVT_TRUNK_ GROUP	A set of trunks providing connectivity to the same place. Individual trunks within the group may be used interchangeably.	20
DEVT_OPERATOR_ GROUP	Two or more operator devices used interchangeably or addressed identically.	21
DEVT_CTI_PORT_ SCCP	A CTI port on a Unified CM device.	22
DEVT_CTI_PORT_SIP	A CTI port on a SIP device.	23
DEVT_OTHER	A device that does not fall into any of the preceding categories.	255

ClassOfDevice Values

Table 6-20 shows the ClassOfDevice values.

Table 6-20 ClassOfDevice Values

ClassOfDevice	Description	Value
DEVC_OTHER	A class of device not covered by the following image, data, or voice classes.	10x
DEVC_IMAGE	A device that is used to make digital data calls involving imaging or high speed circuit switched data in general.	20x
DEVC_DATA	A device that is used to make digital data calls (both circuit switched and packet switched).	40x
DEVC_VOICE	A device that is used to make audio calls.	80x

CallPlacementType Values

Table 6-21 shows the CallPlacementType values.

Table 6-21 CallPlacementType Values

CallPlacementType	Description	Value
CPT_UNSPECIFIED	Use default call placement.	0
CPT_LINE_CALL	An inside line call.	1
CPT_OUTBOUND	An outbound call.	2

Table 6-21 CallPlacementType Values (continued)

CallPlacementType	Description	Value
CPT_OUTBOUND_NO_ ACCESS_CODE	An outbound call that will not require an access code.	3
CPT_DIRECT_POSITION	A call placed directly to a specific position.	4
CPT_DIRECT_AGENT	A call placed directly to a specific agent.	5
CPT_SUPERVISOR_ASSIST	A call placed to a supervisor for call handling assistance.	6

CallMannerType Values

Table 6-22 shows the CallMannerType values.

Table 6-22 CallMannerType Values

CallMannerType	Description	Value
CMT_UNSPECIFIED	Use default call manner.	0
CMT_POLITE	Attempt the call only if the originating device is idle.	1
CMT_BELLIGERENT	The call should always be attempted, disconnecting any currently active call.	2
CMT_SEMI_POLITE	Attempt the call only if the originating device is idle or is receiving dial tone.	3
CMT_RESERVED	Reserved	4

CallOption Values

Table 6-23 shows the CallOption values.

Table 6-23 CallOption Values

CallOption	Description	Value
COPT_UNSPECIFIED	No call options specified, use defaults.	0
COPT_CALLING_ AGENT_ONLINE	Attempt the call only if the calling agent is “online” (available to interact with the destination party).	1
COPT_CALLING_ AGENT_RESERVED	Attempt the call only if ACDNR on the calling agent’s set is activated (DMS-100).	2
COPT_CALLING_ AGENT_NOT_ RESERVED	Attempt the call only if ACDNR on the calling agent’s set is not activated (DMS-100).	3
COPT_CALLING_ AGENT_BUZZ_BASE	Causes a buzz to be applied to the base of the telephone set as the call is initiated (DMS-100).	4

Table 6-23 CallOption Values (continued)

COPT_CALLING_ AGENT_BEEP_HSET	Causes a tone to be applied to the agent headset as the call is initiated (DMS-100).	5
COPT_SERVICE_ CIRCUIT_ON	Causes a call classifier to be applied to the call (ACM ECS)	6

ConsultType Values

Table 6-24 shows the ConsultType values.

Table 6-24 ConsultType Values

ConsultType	Description	Value
CT_UNSPECIFIED	Default (consult call).	0
CT_TRANSFER	Consult call prior to transfer.	1
CT_CONFERENCE	Consult call prior to conference.	2

FacilityType Values

Table 6-25 shows the FacilityType values.

Table 6-25 FacilityType Values

FacilityType	Description	Value
FT_UNSPECIFIED	Use default facility type.	0
FT_TRUNK_GROUP	Facility is a trunk group.	1
FT_SKILL_GROUP	Facility is a skill group or split.	2

AnsweringMachine Values

Table 6-26 shows the AnsweringMachine values.

Table 6-26 AnsweringMachine Values

AnsweringMachine	Description	Value
AM_UNSPECIFIED	Use default behavior.	0
AM_CONNECT	Connect call to agent when call is answered by an answering machine.	1
AM_DISCONNECT	Disconnect call when call is answered by an answering machine.	2
AM_NONE	Do not use answering machine detection.	3

Table 6-26 AnsweringMachine Values (continued)

AnsweringMachine	Description	Value
AM_NONE_NO_ MODEM	Do not use answering machine detection, but disconnect call if answered by a modem.	4
AM_CONNECT_NO_MODEM	Connect call when call is answered by an answering machine, disconnect call if answered by a modem.	5

AnswerDetectMode Values

Table 6-27 shows the AnswerDetectMode values.

Table 6-27 AnswerDetectMode Values

AnswerDetectMode	Description	Value
ADM_UNSPECIFIED	Use default behavior.	0
ADM_VOICE_ THRESHOLD	Report call answered by an answering machine when initial voice duration exceeds time threshold.	1
ADM_VOICE_END	Report call answered by an answering machine when initial voice segment ends.	2
ADM_VOICE_END_ DELAY	Report call answered by an answering machine after a fixed delay following the end of the initial voice segment.	3
ADM_VOICE_AND_ BEEP	Report call answered by an answering machine after a beep tone following the end of the initial voice segment (excluding beep tone without any preceding voice).	4
ADM_BEEP	Report call answered by an answering machine after a beep tone following the end of the initial voice segment (including beep tone without any preceding voice).	5

AgentWorkMode Values

Table 6-28 shows the AgentWorkMode values.

Table 6-28 AgentWorkMode Values

AgentWorkMode	Description	Value
AWM_UNSPECIFIED	Use default behavior.	0
AWM_AUTO_IN	Agent automatically becomes available after handling a call.	1
AWM_MANUAL_IN	Agent must explicitly indicate availability after handling a call.	2

Table 6-28 AgentWorkMode Values (continued)

RA_CALL_BY_CALL	Remote agent Call by Call mode.	3
RA_NAILED_ CONNECTION	Remote agent NailedUp mode.	4

DestinationCountry Values

Table 6-29 shows the DestinationCountry values.

Table 6-29 DestinationCountry Values

DestinationCountry	Description	Value
DEST_UNSPECIFIED	Unspecified or unknown, use default behavior.	0
DEST_US_AND_ CANADA	Call destination is in the United States or Canada.	1

CTI Service Masks

Table 6-30 shows the CTIService masks.

Table 6-30 CTI Service Masks

MaskName	Description	Value
CTI_SERVICE_ DEBUG	Causes all messages exchanged during the current session to be captured to a file for later analysis.	0x80000000
CTI_SERVICE_ CLIENT_ EVENTS	Client receives call and agent state change events associated with a specific ACD phone.	0x00000001
CTI_SERVICE_CALL_ DATA_UPDATE	Client may modify call context data.	0x00000002
CTI_SERVICE_ CLIENT_CONTROL	Client may control calls and agent states associated with a specific ACD phone.	0x00000004
CTI_SERVICE_ CONNECTION_ MONITOR	Establishment and termination of this session cause corresponding Unified CCE Alarm events to be generated.	0x00000008
CTI_SERVICE_ALL_ EVENTS	Client receives all call and agent state change events (associated with any ACD phone).	0x00000010
CTI_SERVICE_ PERIPHERAL_ MONITOR	Client may dynamically add and remove devices and/or calls that it wishes to receive call and agent state events for.	0x00000020
CTI_SERVICE_ CLIENT_MONITOR	Client receives notification when all other CTI client sessions are opened and closed, and may monitor the activity of other CTI client sessions.	0x00000040

Table 6-30 CTI Service Masks (continued)

MaskName	Description	Value
CTI_SERVICE_ SUPERVISOR	Client may request supervisor services.	0x00000080
CTI_SERVICE_ SERVER	Client identify itself as server application.	0x00000100
CTI_SERVICE_ AGENT_REPORTING	Client may reporting/routing ARM(Agent Reporting And Management) messages.	0x00000400
CTI_SERVICE_ALL_ TASK_EVENTS	Client receives all task events.	0x00000800
CTI_SERVICE_ TASK_MONITOR	Client receives monitored task events.	0x00001000
CTI_AGENT_STATE_CONTROL_ONLY	Client can change agent state only. Call control is not allowed. If a client requests for CTI_SERVICE_ CLIENT_CONTROL, the server may grant this flag to indicate that only agent state change is allowed.	0x00002000
Unused		0x00004000
CTI_DEVICE_STATE_CONTROL	The client/server wishes to register and get resource state change requests	0x00008000
CTI_SERVICE_ UPDATE_EVENTS	Requests that this client receive update notification events. (No data)	0x00080000
CTI_SERVICE_ IGNORE_ DUPLICATE_ AGENT_EVENTS	Request to suppress duplicate agent state events.	0x00100000
CTI_SERVICE_ IGNORE_CONF	Do not send confirmations for third party requests.	0x00200000
CTI_SERVICE_ACD_ LINE_ONLY	Request that events for non-ACD lines not be sent. (Unified CCE only)	0x00400000

Disposition Code Values

Table 6-31 shows the Disposition Code values.

Table 6-31 Disposition Code Values

Disposition Code	Meaning
1	Abandoned in Network
2	Abandoned in Local Queue
3	Abandoned Ring
4	Abandoned Delay
5	Abandoned Interflow
6	Abandoned Agent Terminal
7	Short
8	Busy
9	Forced Busy
10	Disconnect/drop no answer

Table 6-31 Disposition Code Values (continued)

11	Disconnect/drop busy
12	Disconnect/drop reorder
13	Disconnect/drop handled primary route
14	Disconnect/drop handled other
15	Redirected
16	Cut Through
17	Intraflow
18	Interflow
19	Ring No Answer
20	Intercept reorder
21	Intercept denial
22	Time Out
23	Voice Energy
24	Non-classified Energy Detected
25	No Cut Through
26	U-Abort
27	Failed Software
28	Blind Transfer
29	Announced Transfer
30	Conferenced
31	Duplicate Transfer
32	Unmonitored Device
33	Answering Machine
34	Network Blind Transfer
35	Task Abandoned in Router
3	Task Abandoned Before Offered
37	Task Abandoned While Offered
38	Normal End Task
39	Can't Obtain Task ID
40	Agent Logged Out During Task
41	Maximum Task Lifetime Exceeded
42	Application Path Went Down
43	Unified CCE Routing Complete
44	Unified CCE Routing Disabled
45	Application Invalid MRD ID
46	Application Invalid Dialogue ID
47	Application Duplicate Dialogue ID

Table 6-31 Disposition Code Values (continued)

48	Application Invalid Invoke ID
49	Application Invalid Script Selector
50	Application Terminate Dialogue
51	Task Ended During Application Init
52	Called Party Disconnected

Agent Service Request Masks

Table 6-32 shows the Agent Service Request masks.

Table 6-32 Agent Service Request Masks

DestinationCountry	Description	Value
OUTBOUND_SUPPORT	The agent login can support outbound feature.	0x1

Silent Monitor Status Values

Table 6-33 shows the Silent Monitor Status Values.

Table 6-33 Silent Monitor Status Values

DestinationCountry	Description	Value
SILENT_MONITOR_ NONE	Normal call (non-silent monitor call)	0
SILENT_MONITOR_ INITIATOR	Initiator of silent monitor call	1
SILENT_MONITOR_ TARGET	Monitor target of silent monitor call	2

APPENDIX A

Changes and Additions

This appendix details the changes and additions made to various protocol versions of the CTI Server.

Protocol Version 16

These changes were made for CTI Server in Protocol Version 16 (Unified CCE verion 9.0(1)).

- Added Agent TeamName to AGENT_TEAM_CONFIG_EVENT Table 5-50
- Added AGENT_TEAM_NAME_TAG(243) to Table 6-4
- Added Direction to AGENT_STATE_EVENT Table 5-18
- Added DIRECTION_TAG(244) to Table 6-4

Protocol Version 15

The following is a list of additions and changes made to the CTI Server in Protocol Version 15 (Unified CCE Version 8.5(x)).

- Added three message types to Table 3-1: 248, 249, 250.
- Added CALL_AGENT_GREETING_MASK to Table 4-3.
- Added CALL_AGENT_GREETING_EVENT in Table 5-4.
- Added AGENT_GREETING_CONTROL_REQ in Table 5-138.
- Added AGENT_GREETING_CONTROL_CONF in Table 5-139.
- Added CF_AGENT_GREETING_CONTROL_OPERATION_FAILURE Extended Control Failure Code to Table 6-16.

Protocol Version 14

The following is a list of additions and changes made to the CTI Server in Protocol Version 14 (Unified CCE Version 8.0(x)).

- Changed the VersionNumber field in OPEN_REQ to 14 from 13.
- Added new floating field tags to Table 6-4:
  - REQUESTING_DEVICE_ID_TAG (219)

  - REQUESTING_DEVICE_ID_TYPE_TAG (220)
  - PRE_CALL_INVOKE_ID_TAG (221)
  - ENTERPRISE_QUEUE_TIME (222)
  - CALL_REFERENCE_ID_TAG (223)
  - MULTI_LINE_AGENT_CONTROL_TAG (224)
  - NETWORK_CONTROLLED_TAG (225)
  - CLIENT_ADDRESS_IPV6_TAG (226)
  - SENDING_ADDRESS_IPV6(TAB(227)
  - NUM_PERIPHERALS_TAG(228)
  - COC_CONNECTION_CALL_ID_TAG(229)
  - COC_CALL_CONNECTION_DEVICE_ID_TYPE_TAG(230)
  - COC_CALL_CONNECTION_DEVICE_ID_TYPE_TAG(231)
  - CALL_ORIGINATED_FROM_TAG(232)
  - SET_APPDATA_CALLID_TAG(233)
  - CLIENT_SHARE_KEY_TAG(234)
- Added SkillGroupNumber field to MAKE_CALL_REQ.
- Added RouterCallKeyDay, RouterCallKeyCallID, and RouterCallKeySequenceNumber fields to SET_CALL_DATA.
- Added floating CallType field and floating PreCallInvokeID field to SET_APP_DATA.
- Added CallReferenceIDfield (for solution call trace) to BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, and SNAPSHOT_CALL_CONF.
- Added optional parms RequestingDeviceID and RequestingDeviceIDType to CLEAR_CONNECTION_REQ.
- Added DEVID_NON_ACD_DEVICE_IDENTIFIER and DEVID_SHARED_DEVICE_IDENTIFIER to Table 6-11.
- Added non ACD line types LINETYPE_NON_ACD_IN and LINETYPE_NON_ACD_OUT to Table 6-14.
- Added calltype CALLTYPE_NON_ACD (27) toTable 6-12.
- Added the NumPeripherals, FltPeripheralID, and MultilineAgentControl fields to OPEN_CONF.
- Added the following status codes to Table 6-1:
  - E_CTI_INVALID_CONFIG_MSG_MASK
  - E_CTI_AUTO_CONFIG_RESET
  - E_CTI_INVALID_MONITOR_STATUS
  - E_CTI_INVALID_REQUEST_ID_TYPE
- Added the following ControlFailureCode values to Table 6-15:
  - CF_INVALID_TRUNK_ID_SPECIFIED
  - CF_SPECIFIED_EXTENSION_ALREADY_IN_USE
  - CF_ARBITRARY_CONF_OR_XFER_NOT_SUPPORTED
  - CF_NETWORK_TRANSFER_OR_CONSULT

  - CF_NETWORK_TRANSFER_OR_CONSULT_FAILED
  - CF_DEVICE_RESTRICTED
  - CF_LINE_RESTRICTED
  - CF_AGENT_ACCOUNT_LOCKED_OUT
  - CF_ARBITRARY_CONF_OR_XFER_NOT_SUPPORTED
  - CF_MAXIMUM_LINE_LIMIT_EXCEEDED
  - CF_SHARED_LINES_NOT_SUPPORTED
  - CF_EXTENSION_NOT_UNIQUE
- Added CTI_SERVICE_ACD_LINE_ONLY and CTI_SERVICE_IGNORE_CONF to Table 6-30.
- Added the ClientAddressIPV6 field to the following events:
  - RTP_STARTED_EVENT
  - RTP_STOPPED_EVENT
  - CLIENT_SESSION_OPENED_EVENT
  - CLIENT_SESSION_CLOSED_EVENT
  - EMERGENCY_CALL_EVENT
  - START_RECORDING_REQ
  - START_RECORDING_CONF
  - STOP_RECORDING_REQ
  - STOP_RECORDING_CONF
- Added the SendingAddressIPV6 field to RTP_STARTED_EVENT and RTP_STOPPED_EVENT.
- Added the COCConnectionCallID, COCCallConnectionDeviceIDType, and COCCallConnectionDeviceID fields to CALL_SERVICE_INITIATED_EVENT and SNAPSHOT_CALL_CONF.
- Added device types DEVT_CTI_PORT_SCCP, and DEVT_CTI_PORT_SIP to Table 6-19.

Protocol Versions 10-13

The following is a list of additions and changes made to the CTI Server in Protocol Versions 10-13 (ICM Version 7.0(x).

- Added New Types to Existing Tables, New fields to existing Messages, New fields added to existing messages
- Added following fields to AGENT_STATE_EVENT: Duration (optional), NextAgentState, FltSkillGroupNumber, FltSkillGroupID, FltSkillGroupPriority, FltSkillGroupState
- Changed Version Number in OPEN_REQ to 13 from 6.
- Added DeviceIDType to SNAPSHOT_CALL_REQ to allow for Queues and Agent extensions with the same number.
- Added ForcedFlag and AgentServiceReq to SET_AGENT_STATE_REQ

- Added CTI_AGENT_STATE_CONTROL_ONLY, CTI_DEVICE_STATE_CONTROL, CTI_ROUTING, CTI_SERVICE_MINIMIZE_EVENTS, CTI_SERVICE_CONFIG_EVENTS, CTI_SERVICE_UPDATE_EVENTS, and CTI_SERVICE_IGNORE_DUPLICATE_AGENT_EVENTS in the CTI Service Masks table.
- Corrected CALL_QUEUED_EVENT scenarios to reflect a QueueDeviceIDType of DEVID_NONE and remove the QueueDeviceID floating field.
- Added DEVID_QUEUE to the device ID type table.
- Removed CallsInQueue from the QUERY_AGENT_STATISTICS_CONF message.
- In CALL_DELIVERED_EVENT, changed AlertingDevice to required.
- Removed Duplicate tag SKILL_GROUP_PRIORITY_TAG.
- Added DEVICE_TYPE_TAG to the tag value table.
- Removed OldestCallInQueue from the QUERY_AGENT_STATISTICS_CONF message.
- Added AgentAvailabilityStatus to QUERY_AGENT_STATE_CONF and AGENT_STATE_EVENT.
- Added AgentsICMAvailable, and AgentsApplicationAvailable to QUERY_SKILL_GROUP_STATISTICS_CONF.
- Added ICMAvailableTimeSession, RoutableTimeSession, ICMAvailableTimeToday, and RoutableTimeToday to QUERY_AGENT_STATISTICS_CONF.
- Added AGENT_UDPATED_EVENT and QUEUE_UPDATED_EVENT to the message type table. The individual messages were covered but they were missing from the table.
- Corrected EMERGENCY_CALL_CONF table.
- Changed PauseDuration in SEND_DTMF_SIGNAL_REQ from USHORT to UINT. The type was mistakenly changed and there is special code to cover the backward compatibility.
- Added EventDeviceType and EventDeviceID in SYSTEM_EVENT to allow specifying a non-numeric device on the in and out of service events.
- Corrected CustomerPhoneNumber, and CustomerAccountNumber to be optional in CALL_DATA_UPDATE_EVENT and SET_CALL_DATA_REQ
- Added NumFltSkillGroups field and floating fields for FltSkillGroupNumber, FltSkillGroupID, FltSkilllGroupState, and FltSkillGroupPriority to allow specifying more than 1 skill group in the event to AGENT_STATE_EVENT
- Added RA_CALL_BY_CALL and RA_NAILED_CONNECTION in AgentWorkMode table.
- Updated following messages with new fields:
  - AGENT_STATE_EVENT: NextAgentState, Duration
  - CALL_DEQUEUED_EVENT: DeQueueType
  - OPEN_REQ: EventMsgMask
  - RTP_STARTED_EVENT: SendingAddress, SendingPort
  - RTP_STOPPED_EVENT:SendingAddress, SendingPort
  - SET_AGENT_STATE_REQ: ForcedFlag
- Updated tables with various new values.
- Added SilentMonitorStatus to SNAPSHOT_DEVICE_CONF message.

Protocol Version 9

The following is a list of additions and changes made to the CTI Server in Protocol Version 9 (ICM Version 5.0).

- Added Server Service. See the section "Server Service" in Chapter 5, "Application Level Interfaces."
- Added the CampaignID and QueryRuleID fields to the SET_CALL_DATA_REQ and CALL_DATA_UPDATE_EVENT messages.
- During an OPEN_REQ of an ALL_EVENTS client session, additional SYSTEM_EVENTs are now sent to the ALL_EVENTS client to indicate the status of each peripheral associated with the PG.
- Added AgentAvailabilityStatus and ICMAgentID fields to QUERY_AGENT_STATE_CONF and AGENT_STATE_EVENT.
- Added field AgentsICMAvailable and AgentsApplicationAvailable to QUERY_SKILL_GROUP_STATISTICS_CONF.
- Added fields ICMAvailableTimeSession, RoutableTimeSession, ICMAvailableTimeToday, and RoutableTimeToday to QUERY_AGENT_STATISTICS_CONF.
- Added ICMAgentID, AgentExtension, AgentID, and AgentInstrument fields to QUERY_AGENT_STATE_REQ.
- Updates to several tables in Chapter 6, "Constants and Status Codes."

Protocol Version 8

The following is a list of additions and changes made to the CTI Server in Protocol Version 8 (ICM Version 4.6).

- Moved the RTP_STARTED_EVENT and RTP_STOPPED_EVENT messages to the ClientEvents Service.
- Added AgentInstrument optional field to the following messages:
  - ALTERNATE_CALL_REQ
  - CLEAR_CALL_REQ
  - CONFERENCE_CALL_REQ
  - DEFLECT_CALL_REQ
  - HOLD_CALL_REQ
  - RECONNECT_CALL_REQ
  - RETRIEVE_CALL_REQ
  - TRANSFER_CALL_REQ
  - SEND_DTMF_SIGNAL_REQ
- Added CalledPartyDisposition field to the BEGIN_CALL_EVENT, CALL_DATA_UPDATE_EVENT, and SNAPSHOT_CALL_CONF messages.
- Added CallType and CalledPartyDisposition fields to the SET_CALL_DATA_REQ message.
- Added BlendedAgent support.
- Add CALLTYPE_PREVIEW and CALLTYPE_RESERVATION call types (see Table 6-12).

- Add CallType and/or CalledPartyDisposition fields to the SET_CALL_DATA_REQ, BEGIN_CALL_EVENT, CALL_DATA_ UPDATE_EVENT, and SNAPSHOT_CALL_CONF messages.
- Added CampaignID and QueryRuleID fields to the SET_CALL_DATA_REQ and CALL_DATA_UPDATE_EVENT messages.
- Add real time and 5 minutes fields to the QUERY_SKILL_GROUP_STATISTICS_CONF message.
- Add new AutoOut, Preview, and Reservation call metrics to the QUERY_AGENT_STATISTICS_CONF and QUERY_SKILL_GROUP_STATISTICS_CONF messages.
- Added SessionID field to the AGENT_STATE_EVENT message.
- Add new BargeIn, Intercept, Monitor, Whisper, and Emergency call metrics to the QUERY_AGENT_STATISTICS_CONF and QUERY_SKILL_GROUP_STATISTICS_CONF messages.
- Added Supervisor services. See "Supervisor Service" in Chapter 5, "Application Level Interfaces."
- Added the following new messages:
  - SET_DEVICE_ATTRIBUTES_REQ / CONF
  - SUPERVISOR_ASSIST_REQ/CONF
  - EMERGENCY_CALL_REQ/CONF
  - SUPERVISE_CALL_REQ/CONF
  - AGENT_TEAM_CONFIG_REQ/CONF/EVENT
  - SET_APP_DATA_REQ/CONF
  - AGENT_DESK_SETTINGS_REQ/CONF
  - LIST_AGENT_TEAM_REQ/CONF
  - MONITOR_AGENT_TEAM_START_REQ/CONF
  - MONITOR_AGENT_TEAM_STOP_REQ/CONF
  - BAD_CALL_REQ/CONF
  - SET_DEVICE_ATTRIBUTES_REQ/CONF
  - REGISTER_SERVICE_REQ/CONF
  - UNREGISTER_SERVICE_REQ/CONF
  - START_RECORDING_REQ/CONF
  - STOP_RECORDING_REQ/CONF
- Added the CustomerPhoneNumber, and CustomerAccountNumber fields. Developers may receive these fields in the CALL_DATA_UPDATE_EVENT messages.

Protocol Version 7

The following is a list of additions and changes made to the CTI Server in Protocol Version 7 (ICM Version 4.5).

- Added the RTP_STARTED_EVENT and RTP_STOPPED_EVENT messages
- Added skill group parameters to the CALL_DELIVERED_EVENT message.

- Added LineHandle and LineType parameters to the CALL_REACHED_NETWORK_EVENT message.

Protocol Version 6

The following is a list of additions and changes made to the CTI Server in Protocol Version 6 (ICM Version 4.1).

- Added the NAMEDVAR and NAMEDARRAY data types.
- Added ICRCentralControllerTime and SystemCapabilities fields to the OPEN_CONF and SYSTEM_EVENT messages.
- System Events Service renamed to Miscellaneous Services.
- NamedVariable and NamedArray optional fields added to the following messages:
  - BEGIN_CALL_EVENT
  - CALL_DATA_UPDATE_EVENT
  - CALL_TRANSLATION_ROUTE_EVENT
  - SET_CALL_DATA_REQ
  - CONFERENCE_CALL_REQ
  - CONSULTATION_CALL_REQ
  - MAKE_CALL_REQ
  - MAKE_PREDICTIVE_CALL_REQ
  - TRANSFER_CALL_REQ
  - SNAPSHOT_CALL_CONF
- EventReasonCode field added to the AGENT_STATE_EVENT message.
- AGENT_PRE_CALL_EVENT and AGENT_PRE_CALL_ABORT_EVENT messages added .
- New messages added to Miscellaneous Services:
  - USER_MESSAGE_REQ/CONF
  - USER_MESSAGE_EVENT
  - SUPERVISOR_ASSIST_REQ/CONF
  - EMERGENCY_CALL_REQ/CONF
  - QUERY_AGENT_STATISTICS_REQ/CONF
  - QUERY_SKILL_GROUP_STATISTICS_REQ/CONF
- AgentExtension and AgentID fields added tothe QUERY_AGENT_STATE_REQ message.
- New values SYS_CTI_SERVER_OFFLINE, SYS_CTI_SERVER_ONLINE, and SYS_HALF_HOUR_CHANGE added to SystemEventID Values table (Table 6-2).
- Maximum length of all instances of the AgentInstrument field increased from 12 to 64 bytes.
- SystemCapabilities field removed from the OPEN_CONF and SYSTEM_EVENT messages.
- NumNamedVariables and NumNamedArrays fixed fields added to all messages that contain the NamedVariable and NamedArray floating fields.
- Supervisor Service removed.

- Queue information added to the QUERY_SKILL_GROUP_STATISTICS_CONF message.
- AgentInstrument field added to QUERY_AGENT_STATE_CONF message.
- Added the following fields to the QUERY_DEVICE_INFO_CONF message:
  - MaxActiveCalls
  - MaxHeldCalls
  - MaxDevicesInConference
  - MakeCallSetup
  - TransferConferenceSetup
  - CallEventsSupported
  - CallControlSupported
  - OtherFeaturesSupported
- New PGStatus code values PGS_CTI_SERVER_OFFLINE and PGS_LIMITED_FUNCTION added to the PGStatusCode table (Table 6-6).
- Added HandledCallsAfterCallTimeSession and HandledCallsAfterCallTimeToday fields to the QUERY_AGENT_STATISTICS_CONF message.
- Added HandledCallsAfterCallTimeToHalf and HandledCallsAfterCallTimeToday fields to the QUERY_SKILL_GROUP_STATISTICS_CONF message.
- New Transfer/Conference Setup Mask values CONF_SETUP_SINGLE_ACD_CALL, TRANS_SETUP_SINGLE_ACD_CALL, and TRANS_SETUP_ANY_SINGLE_CALL added to the QUERY_DEVICE_INFO_CONF message.
- New SystemEventIDs SYS_INSTRUMENT_OUT_OF_SERVICE and SYS_INSTRUMENT_BACK_IN_SERVICE added to the SystemEventID Values table (Table 6-2).
- Added REGISTER_VARIABLES_REQ and REGISTER_VARIABLES_CONF messages.
- Added MonitorID field to AGENT_PRECALL_EVENT and AGENT_PRECALL_ABORT_EVENT messages.
- PeripheralID field added to the USER_MESSAGE_REQ message.
- Updated StatusCodes table (Table 6-1).
- New LineTypes LINETYPE_OUTBOUND and LINETYPE_DID added to the LineTypes table (Table 6-14).
- Added ServiceNumber, ServiceID, SkillGroupNumber, SkillGroupID, and SkillGroupPriority fields to AGENT_PRECALL_EVENT message.
- Added note for CALL_ESTABLISHED_EVENT for Spectrum ACDs.
- Added /CCT (Call Control Table) optional field to the MAKE_CALL_REQ and MAKE_PREDICTIVE_CALL_REQ messages.

Protocol Version 5

The following is a list of additions and changes made to the CTI Server in Protocol Version 5 (ICM Version 4.0).

- Added Peripheral Monitor service and related messages.
- Added a new MonitorID field to all Call and Agent Event messages.

- Added Client Monitor service and related messages.
- Added CallingDeviceType and CallingDeviceID fields to the CALL_SERVICE_INITIATED_EVENT message.
- Increased the maximum number of skill groups from 10 to 20.
- Added AlertRings, CallOption, AuthorizationCode, and AccountCode fields to the CONSULTATION_CALL_REQ, MAKE_CALL_REQ, and TRANSFER_CALL_REQ messages.
- Readded MAKE_PREDICTIVE_CALL_REQ and MAKE_PREDICTIVE_CALL_CONF messages.
- Added new SYS_PERIPHERAL_GATEWAY_OFFLINE System Event ID to the SystemEventID Values table (Table 6-2).
- Added new AM_NONE, AM_NONE_NO_MODEM and AM_CONNECT_NO_MODEM AnsweringMachine values to the AnsweringMachine Values table (Table 6-26).
- ANSWER_CALL_REQ message revised for peripherals that do not provide alerting call identification.
- Added fields for single step conference to the CONFERENCE_CALL_REQ message:
  - CallPlacementType
  - CallMannerType
  - AlertRings
  - CallOption
  - FacilityType
  - Priority
  - PostRoute
  - DialedNumber
  - UserToUserInfo
  - CallVariable1 – CallVariable10
  - CallWrapupData
  - FacilityCode
  - AuthorizationCode
  - AccountCode
- Replaced the AgentInstrument field in the MAKE_PREDICTIVE_CALL_REQ message with the OriginatingDevice field.
- Added the following new fields to the MAKE_PREDICTIVE_CALL_REQ message:
  - AnswerDetectMode
  - AnswerDetectTime
  - AnswerDetectControl1
  - AnswerDetectControl2
  - DestinationCountry
  - OriginatingLineID
- PeripheralOnline field added to the OPEN_CONF message.

- ClientPort field added to the CLIENT_SESSION_OPENED_EVENT and CLIENT_SESSION_CLOSED_EVENT messages.
- Optional AgentInstrument field added to the CLEAR_CONNECTION_REQ message.
- AnsweringMachine field added to the CONFERENCE_CALL_REQ and TRANSFER_CALL_REQ messages.
- Optional AgentInstrument field added to the CONSULTATION_CALL_REQ message.
- Added the symbolic constant NULL_CALL_ID to the Special Values table (Table 6-3).
- New peripheral types PT_SIEMENS_9005 and PT_ALCATEL added to the PeripheralType Values table (Table 6-7).

INDEX

A

B

C

D

E

F

H

I

L

M

N

O

P

Q

R

S

T

U