



Powering connections

# **Mitel Connect ONSITE Contact Center Event Feed Guide**

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September 30, 2019

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Event Feed Guide

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# CHAPTER

# 1

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## SDK Overview and Prerequisites

This document provides an overview of the SDK, prerequisites, and basic connection formats used to connect to and disconnect from the Connect Contact Center event feed SDK.

ShoreTel is now part of Mitel. Together, we look forward to helping you power connections that are brilliantly simple.

### SDK Overview

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You can use this SDK to provide real-time monitoring information to supervisors via an agent dashboard, integrate the contact center with a Workforce Optimization Management solution, or write your own agent interface.

### Revision History

This is revision 3 of the SDK. Content changes in this revision are as follows:

- Removal of the RTA on port 31455

## Terminology

- ACD: Automatic call distribution
- ASA: Average speed of answer
- JSON: Java Script Object Notation (<http://www.json.org>)
- TSF: Telephone Service Factor

## Audience

It is assumed that you are familiar with the following:

- The Unified Communications solution
- Connect Contact Center
- Building and parsing JSON messages
- TCP/IP Sockets programming

## Version Compatibility

- Connect Contact Center ONSITE or later

## Features

### Access Credentials

Before using the SDK, navigate to **System Parameters > External Interfaces > Event Feeds** to configure access credentials to authenticate the application.



#### Notes

- When adding the access credentials, choose Real-Time Events from the Connection Type drop-down.
- Multiple SDK applications can concurrently use the same access credentials from their respective TCP/IP connections (up to the allowed number of concurrent connections).

## JSON Messaging Over TCP/IP

The requests and events are JSON messages over a TCP/IP connection. This means the SDK can be used by any client on any platform using standard BSD sockets. There is no dependency on client-side libraries or DLLs. Customers have the freedom to choose any tool or language on any operating system, as long as it supports TCP.

## Contact Center Entities Snapshot

Snapshots of the following Connect Contact Center entities are available: agent, agent queues, email agent queues, group, DNIS, release code, and wrap-up code.

## Contact Center Statistics

The following statistics are available: agent queue, daily agent, email agent queue, daily group, agent activity, call activity, daily DNIS, group (interval based and daily), group agents, agents needing help, and DNIS.

Refer to Chapter 2, [Group Activity Event Feed Overview](#) on page 11, and Chapter 3, [Real-Time Group Activity Event Feed SDK](#) on page 21 for more detailed information about the entities and statistics available with the event feed SDK.

## Deployment

### Deployment Diagram

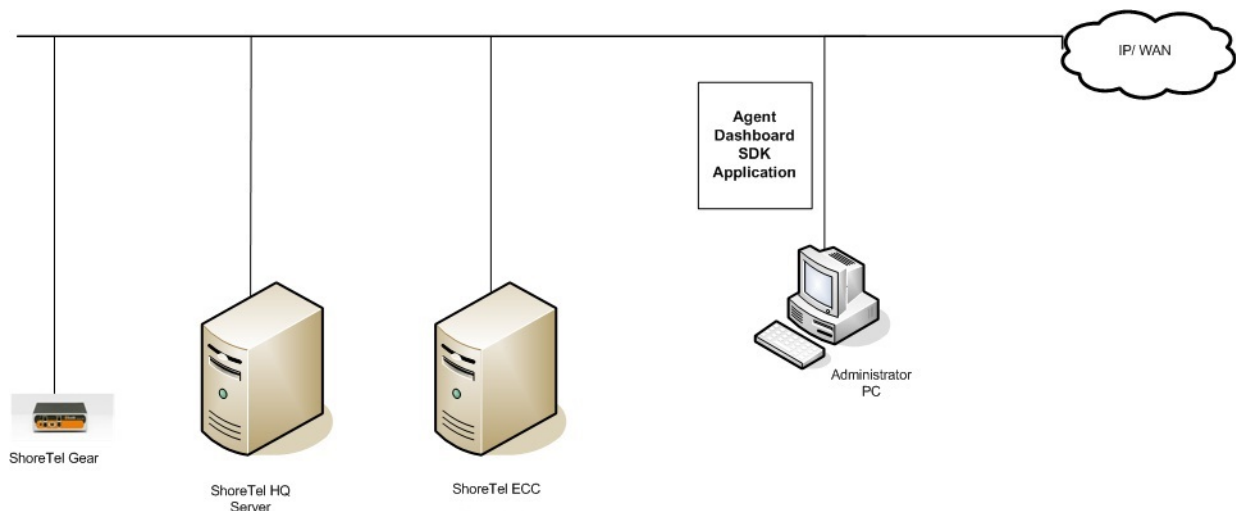


Figure 1: CC Event Feed SDK Deployment Diagram

## Prerequisites

Access to the SDK is controlled by a license and credentials configured by an administrator. In Connect Contact Center Director, click **System Parameters** > **External Interfaces** > **Event Feeds** to enable the SDK, and use **Maintenance** > **License** > **License Keys** to specify the SDK license.

## Access and Licensing

The use of this SDK is controlled by a license as well as user name and password configured by a Connect Contact Center administrator. Any application developed with this SDK needs to be authenticated first by providing these credentials.



### Note

A maximum of 50 concurrent connections is allowed. So, this value can be set to any number up to that which the license allows, or to 50, whichever is lower.

To access the SDK, access port 31456 via TCP/IP connection. **TCP/IP Port**

The default TCP port for the event feed SDK is 31456. Specify the port in **System Parameters > External Interfaces > Event Feed Ports**.

## Reference

### Usage Mode

The 3rd party application first opens a TCP/IP connection to the SDK at the configured port, and then it registers with the SDK by sending requests. The first request sent must be an authentication request. After successful authentication, the application should then register for events for specified Connect Contact Center entities. In response to proper authentication and registration, Connect Contact Center starts streaming the requested events to the application on the established TCP/IP connection.

### Messaging

#### Message Format

All request, response, and event messages are in the JSON format. A NULL character ('\0' or 0x00) is used to terminate each JSON message. The SDK application needs to append the NULL character when sending a request message as well.



### Notes

- All SDK messages are case sensitive.
- A wildcard (\*) still needs to be specified as a JSON array, such as [""].
- Spaces are not required and do not affect the SDK JSON messages in any way. In the examples below, indents are used only for better readability.

### Communication Mechanism

The JSON messages are exchanged over a socket connection with the SDK's TCP/IP port.



## Best Practices

As it is the nature of TCP/IP to disassemble and reassemble packets, a NULL character ('\0') is used to terminate each JSON message to guarantee the JSON message delivery. A SDK application should rely on the NULL character to separate one JSON message from the next.

For a system with a large number of groups and agents, the SDK can stream a large volume of data under load or busy conditions, which should be taken into account in any SDK application. A SDK application should drain available data as soon as possible from the socket following TCP/IP best practices. Also, there is no time out mechanism on TCP/IP connections. So a SDKCLOUD API application should be careful about TCP/IP connection leaks.

Each TCP/IP connection with the SDK is treated as a live session. A session ends when the TCPconnection is closed or lost. In case of a server reboot, system failure, or LAN/WAN outage, TCP/IPconnections might be lost/terminated. It is the responsibility of the SDK application to detect the status of the TCP/IPconnection and reconnect and re-subscribe as necessary.



# CHAPTER

# 2

## Group Activity Event Feed Overview

This chapter provides an overview of the Connect Contact Center Real-Time Group Activity Event Feed SDK. The SDK can be used by developers to enable their applications to subscribe for group events from Connect Contact Center. This feed provides information such as the following:

- Extensive group information such as calls in queue, calls answered or abandoned, average or maximum queue time, number of agents in different states and others.
- Agent information for groups, for example agents logged in, agent activities, agent states, call details, and others.
- DNIS information, such as calls answered or abandoned, and queue time.
- Specifics on agents requiring supervisor help.

### Requests and Events

#### Requests

Request	Description
Authenticate	This must be the first request sent by an application to authenticate itself using the configured credentials.

Request	Description
Subscribe	Allows subscribing for event feeds of Contact Center entity updates or statistics.
Unsubscribe Events	Allows unsubscribing of agents events for a list of groups and/or agents.

## Events

Agent Event	Description
Agent login	Received when an agent logs in
Agent released	Received when an agent is released
Agent idle	Received when an agent becomes idle
Agent wrap up	Received when an agent enters wrap-up
Agent Reserved	Received when an agent is reserved for a particular type of call
Agent on call	Received when an agent is on a call
Entity Snapshot	Contains snapshot information of a Contact Center entity.
Entity Update	Received when a Contact Center entity is updated from Contact Center Director.
Group Stats	Received when a subscribed group's statistics are updated for the current interval.
Agent Queue Stats	Received when a subscribed agent queue's statistics are updated.
Daily Group Stats	Received when a subscribed group's daily statistics are updated.
Group Agent Stats	Received when statistics of an agent in the subscribed group are updated.
DNIS Stats	Received when statistics of a subscribed DNIS are updated.
Daily DNIS Stats	Received when statistics of a subscribed DNIS are updated for the current interval.
Agent Need Help	Received when a Contact Center agent asks for supervisor help.
Call Activity	Received when the agent has had call activity.
Daily Agent Stats	Received when a subscribed agent's activity is updated.

## Commands

Agent Command	Description
Login command	Logs the agent in
Logout command	Logs the agent out
Release command	Releases the agent
Resume command	Resumes the agent
Enter wrapup code command	Prompts the agent to enter a wrap-up code
Manual wrapup command	Prompts the agent to enter wrapup
End wrapup command	Ends wrapup
Answer call command	Answers a call
Hang up command	Hangs up a call
Command Response	Displays a command response

## Daily Group Statistics

Group statistics data that is aggregated daily from 12:00 am (midnight), or from the time of the last restart of the Connect Contact Center server.

## Group Agents Statistics

For all agents logged into the group:

- Group ID
- Group name
- Agent Queue ID
- Agent name
- Agent ID
- Agent number
- Agent extension
- Agent state code. Refer to [Agent State Codes](#) on page 19 for available agent state codes and their descriptions.
- Agent state start time
- ANI (Caller ID) of the current ACD contact
- DNIS of the current ACD contact
- Release code

- Total number of non ACD voice calls (inbound and outbound)
- Wrap up code
- Number of currently active incoming ACD voice calls
- Number of currently active outbound ACD voice calls
- Number of currently active non-ACD voice calls (incoming and outgoing, internal and external)
- Number of currently active incoming chat contacts
- Number of currently active incoming ACD email contacts
- Number of currently held calls

## Agent Queue Statistics

- Agent ID
- Agent name
- Agent number
- Agent extension
- Agent state code. Refer to [Agent State Codes](#) on page 19 for available agent state codes and their descriptions.
- The agent's calls answered per hour (rate per hour (RPH)) for incoming calls
- Average Answer Time (ASA)
- Number of ACD calls answered
- Number of ACD calls abandoned
- Number of ACD calls interflowed out
- ACD calls answered by another group
- Number of ACD calls accepted by the agent from ACD calls offered
- TSF of the agent
- Number of ACD calls currently in the agent's queue
- Longest wait time in queue
- Average time an ACD call was in queue
- Average talk time for ACD calls
- Average time an ACD call was in queue before being abandoned

- Average time an ACD call was in queue before being interflowed out
- Number of outbound ACD calls answered in agent's queue
- Number of outgoing ACD calls that have failed
- Number of outbound ACD calls pending in agent's queue
- Number of outgoing ACD calls currently in the agent's queue
- Average time an outgoing ACD call was in queue
- Average talk time for outgoing ACD calls
- Number of ACD calls, previously answered, that waited in the agent's queue
- Number of ACD calls answered, placed back in the agent queue, and then answered again
- Number of ACD calls answered, placed back in the agent queue, and then abandoned by the caller while in queue
- Queue time of incoming ACD calls that were answered and then placed back into the agent queue
- Talk time of incoming ACD calls that were answered and then placed back into the agent queue, and then answered again

## Email Agent Queue Statistics

- Agent ID
- Agent name
- Agent number
- Agent extension
- Agent state code. Refer to [Agent State Codes](#) on page 19 for available agent state codes and their descriptions.
- The agent's email calls answered per hour (rate per hour (RPH)) for incoming calls
- Average Answer Time (ASA)
- Number of email calls answered
- Number of email calls abandoned
- Number of email calls interflowed out
- email calls answered by another group
- Number of email calls accepted by the agent from email calls offered
- TSF of the agent

- Number of email calls currently in the agent's queue
- Longest wait time in queue
- Average time an email call was in queue
- Average talk time for email calls
- Average time an email call was in queue before being abandoned
- Average time an email call was in queue before being interflowed out
- Number of outbound email calls answered in agent's queue
- Number of outgoing email calls that have failed
- Number of outbound email calls pending in agent's queue
- Number of outgoing email calls currently in the agent's queue
- Average time an outgoing email call was in queue
- Average talk time for outgoing email calls
- Number of email calls, previously answered, that waited in the agent's queue
- Number of email calls answered, placed back in the agent queue, and then answered again
- Number of email calls answered, placed back in the agent queue, and then abandoned by the caller while in queue
- Queue time of incoming email calls that were answered and then placed back into the agent queue
- Talk time of incoming email calls that were answered and then placed back into the agent queue, and then answered again

## DNIS Statistics

- DNIS number
- DNIS name
- Calls in queue
- Calls in queue above target average speed of answer (TASA)
- Average queue time of calls
- Max queue time of calls
- Max queue time of calls for this interval
- Calls answered



- Calls abandoned
- Maximum waiting time of calls before abandoned
- TSF
- TASA (target average speed of answer)
- Interval time in minutes
- ACD e-mails in queue
- ACD e-mails in queue above TASA
- ACD e-mails answered
- Average queue time of ACD e-mails
- Max queue time of ACD e-mails
- Max queue time of ACD e-mails for this interval
- Chats in queue
- Chats in queue above TASA
- Average queue time of chats
- Max queue time of chats
- Max queue time of chats for this interval
- Chats answered
- Chats abandoned
- Maximum waiting time of chats before abandoned

## Agent Activity Statistics

- Agent login time
- Agent release time
- Agent idle time
- Number of agent wrap up events
- Agent reserved time
- Agent call time

## Daily DNIS Statistics

Same as elements in the DNIS Statistics except that the data is aggregated daily from 12:00 am (midnight), or from the time of the last restart of the Contact Center server.

## Agents Needing Help Statistics

For all agents:

- Agent Name
- Agent ID
- Agent Extension
- Start time

## Daily Agent Stats

- Daily cumulative num of outbound ACD calls per Agent
- Daily cumulative non-acd-handled per Agent
- Daily cumulative acd-answered per Agent
- Daily cumulative oacd-answered per Agent
- Daily cumulative chat-answered per Agent
- Daily cumulative email-answered per Agent
- Group Outbound Statistics (Active, Pending, Current and Daily)
- Current ACD group of Agent
- active-acd per Agent
- active-oacd per Agent
- active-chat per Agent
- active-email per Agent
- release code per Agent
- Current list of groups Agent is logged in

## Agent State Codes

Agent state codes and their descriptions are:

Agent State Code	Description
0	Logged Out
1	Idle
2	ACD alerting
3	ACD talking
4	Wrap up
5	Non-ACD Incoming
6	Non-ACD Outgoing
7	Release
8	Non-ACD outgoing while in release
9	Non-ACD incoming while in release
10	Busy while in release
11	Busy
21	Split - agent is busy with ACD activity in other group
24	Outbound ACD Reserved
25	Outbound ACD Alerting
26	Outbound ACD Talking
27	Handling email
28	Handling email while on outgoing voice call
29	Handling email while on incoming voice call
30	Handling email while in busy state with voice activities



# CHAPTER

# 3

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## Real-Time Group Activity Event Feed SDK

This chapter provides specifics on the Connect Contact Center Real-Time Group Activity Event Feed SDK. The SDK can be used by developers to enable their applications to subscribe for agent events from Connect Contact Center. Information on group activity is delivered in the form of a JSON event feed.

This SDK provides JSON requests and responses as well as interval based group statistics.

Using this SDK, you can provide real-time agent events from Contact Center to your application. With this information from Contact Center, your application can, for instance, automatically alert managers when agents log in or out of a group.

Each event includes a sequence number to allow an application to determine the order of the events received, which is critical for entity state messages.

The sequence number is maintained on a per-HTTP/HTTPS connection basis, and it is a long integer value between 0 and 4,294,967,295. When the sequence number reaches the max value, it restarts at 0.

Applications that connect to Connect Contact Center via HTTP/HTTPS, such as the Mitel Interaction Center, receive the sequence number in the body of the event. Mitel Interaction Center is the web application that agents use to answer and manage voice, email, and chat interactions from the ACD.

# Authenticate

## Request JSON Message

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "request-id":<request id>,
  "message":"authenticate",
  "user": "<configured user name for the application>",
  "password": "<MD5 encrypted password for the application>",
}
```

---

### Parameters:

- version: Set to version of the application you are developing.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: Set to contact-center
- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- message: Set to authenticate
- user: The configured user name for the application
- password: The configured password for the application, which is encrypted using MD5 algorithm.

## Response JSON Message

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "request-id":<request id>,
  "message":"authenticate",
  "result":<result code>,
  "error-msg": "<msg>",
}
```

---

### Parameters:

- version: Set to version of the application you are developing.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This reflects the original type sent in the request to authenticate.
- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.

- **message:** This reflects the original request sent. In this case, it is set to authenticate.
- **result:** 0 indicates success, and a negative value indicates failure.
- **error-msg:** If the result is negative, this parameter contains the error message.

## Description

The SDK requires an authentication request to confirm a connection to an SDK application. This is the first request an application must send after establishing the TCP connection.



### Notes

- Failure to send an authentication request or sending the wrong credentials causes the SDK to disconnect the TCP connection.
- The password must be encrypted using MD5 algorithm.

# Subscribe Events

## Request JSON Message

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "request-id":<request id>,
  "message":"subscribe-events",
  "subscribe": [ <subscription-record> ]
}
```

### Parameters:

- **version:** Version of the application being developed.
- **sequence:** unsigned long type of value between 0 and 4,294,967,295.
- **topic:** Set to contact-center.
- **request-id:** If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- **message:** Set to subscribe-events.
- **subscription-record:** The subscription record has a topic, which should be ecc, a subscription type, and an entity list. [Table 1](#) on page 24 includes valid subscription types.

**Table 1: Subscription Types**

Subscription type	Entity list
entity	JSON list of the following Contact Center entities: "agent","group","agent-queue", "email agent queue", "dnis", "release-code", or "wrapup-code"
group-stats	JSON list of group entity IDs such as ["*", "<group ID1>","<group ID2>","..."]
agent-queue-stats	JSON list of agent queue entity IDs such as ["*", "<agent ID1>","<agent ID2>","..."]
email-agent-queue-stats	JSON list of email agent queue entity IDs such as ["*", "<agent ID1>","<agent ID2>","..."]
daily-agent-stats	JSON list of agent entity IDs such as ["*", "<agent ID1>","<agent ID2>","..."]
group-agent-stats	JSON list of group entity IDs such as ["*", "<group ID1>","<group ID2>","..."]
dnis-stats	JSON list of DNIS entity IDs such as ["*", "<dnis ID1>","<dnis ID2>","..."]
daily-dnis-stats	JSON list of DNIS IDs such as ["*", "<dnis ID1>","<dnis ID2>","..."]
agent-login-logout	
agent-status	
agent-need-help	["*"]
agent-activity	JSON list of agent IDs such as ["*", "<agent ID 1>","<agent ID 2>","..."]
call-activity	["*"]
call-routing	
call-establishment	
call-statistics	
daily-agent-stats	JSON list of daily agent stats such as ["*", <agent ID 1>, <agent ID 2>, ...],

**Notes**

- Wildcard (\*) can be used to subscribe to everything under a certain subscription type.
- For the agent-need-help message, the wild card entity list ["\*"] is the only valid option.

**Response JSON Message**

```
{
  "request": "Subscribe",
  "version": 1,
  "sequence": <sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "topic": "contact-center",
  "message": "subscribe-events",
  "request-id": <request id>,
  "subscribe": [ <subscription-record> ],
  "result": <result code>,
  "additional-info": "<info>", //optional
}
```



```
"error-msg": "<msg>"
}
```

---

### Parameters:

- request: This reflects the original request sent. In this case it is set to "Subscribe".
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the server time.
- topic — This reflects the original type sent in the request.
- message — This reflects the original request sent. In this case, it is set to subscribe-events.
- request-id — If the incoming request ID can be identified, this field will have the same ID. If not identifiable, this field will be -1.
- result — 0 indicates success, a negative value indicates failure, and a positive value indicates partial failure.
- error-msg — If result is negative, this parameter contains the error message.

### Description

This message allows subscribing to Contact Center entities and their statistics.



#### Notes

- When registering against entities in Contact Center, an SDK application must provide entities that exist.
  - When registering for a Contact Center entity, a snapshot event feed is sent. For instance, when subscribing to the Contact Center group entity, a list of all configured Contact Center groups is sent along with the configured thresholds for each group.
- 

## Unsubscribe Events

### Request JSON Message

```
{
  "request": "Unsubscribe",
  "version": 1,
  "sequence": <sequence number between 0 and 4294967295>,
  "topic": "contact-center",
  "request-id": <request id>,
  "message": "unsubscribe-events",
  "subscribe": [ <subscription-record> ]
}
```

---

**Parameters:**

- request: This should be set to "Unsubscribe".
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic — This should be set to contact-center.
- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- message — This should be set to unsubscribe-events.
- subscription-record — The subscription record has a topic, which should be always Connect Contact Center, a subscription type, and an entity list. Refer to [Table 1](#) on page 24 for a list of subscription types.

## Agent Activity Events

### Agent login event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"agent-login",
  "sub-topic": "",
  "agent-id":<agent ID>,
  "cause":<cause code>,
  "agent-number":<agent number>,
  "agent-ext":<phone ext>,
  "groups": [
    {"type":<group type>,"id":<group ID>},
    {"type":<group 2 type>,"id":<group 2 ID>},
    ...
  ]
}
```

---

**Parameters**

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.
- message: This should be set to unsubscribe-events.

- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- cause: Refer to [Cause Codes](#) on page 67 for information about possible cause codes
- agent-number: Agent's number
- agent-ext: Agent's extension

## Agent released event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"agent-release",
  "sub-topic":"",
  "agent-id":<agent ID>,
  "cause":<cause code>,
  "release-code":<release code>
}
```

---

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.
- message: This should be set to unsubscribe-events.
- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- cause — Refer to [Cause Codes](#) on page 67.
- release-code — Refer to the entity subscription, release code section.

## Agent idle event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
}
```

---

```

    "message": "agent- idle ",
    "sub-topic": "",
    "agent-id": <agent ID>,
    "cause": <cause code>
  }

```

---

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.
- message: This should be set to unsubscribe-events.
- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- cause — Refer to [Cause Codes](#) on page 67.

### Agent wrap up event

```

{
  "version": 1,
  "sequence": <sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "gmt": "<server time in GMT>",
  "topic": "contact-center",
  "message": "agent-wrap",
  "sub-topic": "",
  "agent-id": <agent ID>,
  "cause": <cause code>,
  "media-type": <media type>,
  "call-id": <Connect Contact Center call id>,
  "tapi-call-id": <PBX call id>,
  "guid": <PBX call guid>,
  "wrapup-code": <wrapup-code>
}

```

---

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.

- message: This should be set to unsubscribe-events.
- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- media-type: Refer to the call activity events.
- cause: Refer to [Cause Codes](#) on page 67.
- call-id: PBX call id
- tapi-call-id: PBX call id
- guid: PBX call guid
- wrapup-code: Refer to the entity subscription, wrapup section.

## Agent Reserved Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "gmt": "<server time in GMT>",
  "topic": "contact-center",
  "message": "agent-reserved",
  "sub-topic": "",
  "agent-id": <agent ID>,
  "cause": <cause code>,
  "groups": [{"type": <group type>, "id": <group id>}, ... ],
  "guid": <PBX call guid>
}
```

---

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.
- message: This should be set to unsubscribe-events.
- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- cause: Refer to [Cause Codes](#) on page 67.
- groups: Name and ID of the group the agent is assigned to

- guid: PBX call guid

## Agent on call Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"agent-on-call",
  "sub-topic": "",
  "agent-id":<agent ID>,
  "cause":<cause code>,
  "call-type":<number>,
  "call-id":<number>,
  "pbx-call-id":<number>,
  "guid":<PBX call guid>
}
```

---

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- gmt: This should be the server time in GMT.
- topic: This should be set to contact-center.
- message: This should be set to unsubscribe-events.
- sub-topic: Connect Contact Center application that agent is logging in to.
- agent-id: Agent's ID
- cause: Refer to [Cause Codes](#) on page 67.
- call-type: Number to indicate the type of call: voice, chat, email, callback, abandoned, web callback, dial list
- call-id: PBX call id
- pbx-call-id: PBX call id
- guid: PBX call guid

This event is designed to be used with light-weight, 3rd-party applications. Subscribing to this event allows the user to know an agent is on a call, but does not provide detailed information that would be sent when subscribing to Call Activity Events. Mitel recommends using Call Activity Events feed whenever possible.

# Commands

Commands are used to configure 3rd party applications to control an agent without using Mitel Interaction Center.

## Login command

This command allows agents be logged in as follows:

- If group-id is 0, the agent is logged in to their primary group.
- To log the agent in to a specific group, leave group-id blank, and specify the group-type and group-id.

---

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"login",
  "agent-id":"<agent id>",
  "agent-number":"<agent number>",
  "agent-extension":"<phone ext>",
  "group-type":<group type>,
  "group-id":<group id>
}
```

---

### Parameters:

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "login."
- agent-number: Agent's ID
- agent-extension: Agent's extension
- group-type — Refer to [Agent login event](#) on page 26.
- group-id — This value is the agent ID if the group type is agent queues or email agent queue. Pass 0 for this parameter to log in primary groups.

No password is required.

## Logout command

This command allows agents be logged out as follows:

- If group-id is 0, the agent is logged out of their primary group.
- To log the agent out of a specific group, leave group-id blank, and specify the group-type and group-id.

---

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"logout",
  "agent-id":<agent ID>,
  "group-type":<group type>,
  "group-id":<group id>
}
```

---

## Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "logout."
- agent-id: Agent's ID
- group-type — see agent login event.
- group-id — will use agent ID if group type is agent queues or email agent queue. Use 0 to log in primary groups.

## Release command

---

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"release",
  "agent-id":<agent ID>,
  "release-code":<release code id>
}
```

---



## Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "release."
- agent-id: Agent's ID
- release-code — release code ID.

## Resume command

---

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"resume",
  "agent-id":<agent ID>
}
```

---

## Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "resume."
- agent-id: Agent's ID

## Enter wrapup code command

---

```
{
  "request-id":<request id>,
  "version":1,
```

```

    "sequence":<sequence number between 0 and 4294967295>,
    "topic":"contact-center",
    "message":"command",
    "sub-request-type":"wrapup-code",
    "agent-id":<agent ID>,
    "wrapup-code-id":<wrapup code id>,
    "call-id":<call id>
  }

```

---

### Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "wrapup-code."
- agent-id: Agent's ID
- wrapup-code-id: Wrapup code ID
- call-id: Identifies which interaction goes out of wrapup

## Manual wrapup command

This event extends wrap-up indefinitely.

```

{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"manual-wrapup",
  "agent-id":<agent ID>,
  "call-id":<call ID>
}

```

---

### Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.

- message: This should be set to "command."
- sub-request-type: This should be set to "manual-wrapup."
- agent-id: Agent's ID
- call-id: Identifies which interaction goes out of wrapup

## End wrapup command

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "sub-request-type":"end-wrapup",
  "agent-id":<agent ID>,
  "call-id":<call ID>
}
```



### Note

When used in the Mitel Interaction Center, the End wrapup command disregards Connect Contact Center Director configuration to require wrap-up codes, which means agents can exit wrap-up without entering a wrap-up code.

## Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "end-wrapup."
- agent-id: Agent's ID
- call-id: Identifies which interaction goes out of wrapup

## Answer call command

```
{
  "request-id":<request id>,
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
}
```

```
"sub-request-type":"answer",  
"agent-id":<agent ID>,  
"call-id":<call ID>  
}
```

---

### Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "answer."
- agent-id: Agent's ID
- call-id: Identifies which interaction to answer

## Command Hangup

---

```
{  
  "request-id":<request id>,  
  "version":1,  
  "sequence":<sequence number between 0 and 4294967295>,  
  "topic":"contact-center",  
  "message":"command",  
  "sub-request-type":"hangup",  
  "agent-id":<agent ID>,  
  "call-id":<call ID>  
}
```

---

### Parameters

- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- sub-request-type: This should be set to "hangup."
- agent-id: Agent's ID
- call-id: Identifies which interaction to hang up

## Command Response

This event is sent for all commands.

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "topic":"contact-center",
  "message":"command",
  "request-id":<request ID>,
  "command":<command received>,
  "result":<result code>
}
```

### Parameters

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- topic: This should be set to contact-center.
- message: This should be set to "command."
- request-id: If the incoming request ID can be identified, this field will have the same ID. If the incoming request ID is not identifiable, this field will be -1.
- command: This should be the command received
- result: 0 - Successful; negative - Failed

Comments received and need to be planned — Displays connections on console or debug tool.

## Unsubscribe Events Requests

Subscription type	Entity list
entity	JSON list of the following Contact Center entities: "agent","group","agent-queue", "dnis", "release-code", or "wrapup-code"
group-stats	JSON list of group entity IDs such as ["*", "<group ID1>"," <group ID2>"," ...]
agent-queue-stats	JSON list of agent entity IDs such as ["*", "<agent ID1>"," <agent ID2>"," ...]
daily-group-stats	JSON list of group entity IDs such as ["*", "<group ID1>"," <group ID2>"," ...]
daily-agent-stats	JSON list of agent entity IDs such as ["*", "<agent ID1>"," <agent ID2>"," ...]
email-agent-queue-stats	JSON list of agent entity IDs such as ["*", "<agent ID1>"," <agent ID2>"," ...]

Subscription type	Entity list
agent-activity	JSON list of agent entity IDs such as ["*", "<agent ID1>", "<agent ID2>", ...]
call-activity	JSON list of call entity IDs such as ["*", "<call ID1>", "<call ID2>", ...]
group-agent-stats	JSON list of group entity IDs such as ["*", "<group ID1>", "<group ID2>", ...]
dnis-stats	JSON list of DNIS entity IDs such as ["*", "<dnis ID1>", "<dnis ID2>", ...]
daily-dnis-stats	JSON list of DNIS IDs such as ["*", "<dnis ID1>", "<dnis ID2>", ...]
agent-need-help	["*"]



#### Notes

- Wildcard (\*) can be used to unsubscribe to everything under a certain subscription type.
- For the agent-need-help message, a wild card entity list ["\*"] is the only valid option.

### Response JSON Message

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "topic": "contact-center",
  "message": "unsubscribe-events",
  "request-id": <request id>,
  "result": <result code>,
  "error-msg": "<msg>"
}
```

#### Parameters:

- version: Version of the application being developed.
- sequence: unsigned long type of value between 0 and 4,294,967,295.
- timestamp: This reflects the sever time.
- topic — This should be set to contact-center.
- message — This reflects the original request sent. In this case, it is set to unsubscribe-events.
- request-id — If the incoming request ID can be identified, this field will have the same ID. If not identifiable, this field will be -1.
- result — 0 indicates success, a negative value indicates failure, and a positive value indicates partial failure.

- **error-msg** — If result is negative, this parameter contains the error message.

### Description

This request allows unsubscribing to the events of the specified entities and/or group's statistics.

## Event Feeds

The various event feed messages are described in this section. The JSON field names are self-explanatory.

### Entity Snapshot

On subscribing for a Contact Center entity (group, agent, agent queue, email agent queue, DNIS, release code, or wrap-up code), the corresponding entity snapshot message is sent.

### Event JSON Message

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "topic": "contact-center",
  "message": "entity-snapshot",
  "sub-topic": "<sub topic>",

  "groups": [
    { "group-id": "<group 1>",
      "group-name": "<group 1 name>",
      "short-call-threshold": <in seconds>,
      "thresholds": [ "threshold-name": "<text>",
        "yellow-alert-threshold": "<value>",
        "red-alert-threshold": "<value>",
        "triggering-criteria": "<criteria code>"
      ] },
    ...
  ],

  "agent-queues": [ { "agent-queue-id": "< agent-queue 1>",
    "agent-queue-name": "<agent-queue 1 name>" }, ... ]

  "agents": [ { "agent-id": <agent 1 id>, "agent-number": "<agent number>", "agent-
    name": "<agent 1 name>" }, ... ],

  "dnis": [ { "dnis-id": <dnis 1>, "dnis-number": <dnis number>, "dnis-name": "<dnis 1
    name>" }, ... ],

  "release-codes": [ { "release-code-id": <release code id 1>, " release-code-short-
    name": "<short name 1>", " release-code-name": "<name 1>" }, ... ],

  "wrapup-codes": [ { "wrapup-id": <wrapup id 1>, " wrapup-code": "<wrapup code
    1>", "wrapup-name": "<name 1>" }, ... ]
}
```

---



### Notes

- sub-topic can be agent-update, group-update, dn timer-update, release-code-update, wrapup-code-snapshot.
- criteria code — For the group-snapshot, it is the triggering criteria for the group's thresholds. It can have following values:
  - u — alert triggered when higher than threshold.
  - d — alert triggered when lower than threshold.

## Entity Update

When subscribed for a Connect Contact Center entity, such as group, agent queue, email agent queue, agent, DNIS, release code or wrap-up code, this message is sent when that entity is added, updated or deleted.

### Event JSON Message

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"entity-update",
  "sub-topic":<sub topic>,
  "update-type":<update type>,
  "group-id":<group 1>,
  "group-name":<group 1 name>,
  "agent-queue-id":< agent-queue 1>,
  "agent-queue-name":<agent-queue 1 name>,
  "short-call-threshold":<in seconds>,
  "thresholds":[{"threshold-name":<text>,
    "yellow-alert-threshold":<value>,
    "red-alert-threshold":<value>,
    "triggering-criteria":<criteria code>"}],
  "agent-id":<agent 1 id>,
  "agent-number":<agent number>,
  "agent-name":<agent 1 name>,
  "dnis-id":<dnis 1>,
  "dnis-number":<dnis number>,
  "dnis-name":<dnis 1 name>
}
```



### Notes

- sub-topic can be agent-update, group-update, dn timer-update or release-code-update.
- update-type can be add, update or delete.
- There is no release code update or wrap-up code update message. Every code update is sent as a complete snapshot.



## Event JSON Message

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"",
  "sub-topic":"",
  "group-id":<grp id>,
  "group-name":<group name>,
  "start-time":<time string>,
  "interval-length":<minutes>,
  "queued-calls":<number>,
  "queued-calls-above-tasa":<number>,
  "current-avg-que-time":<number>,
  "current-max-que-time":<number>,
  "queued-sti-1":<number>,
  "queued-sti-2":<number>,
  "queued-sti-3":<number>,
  "queued-sti-4":<number>,
  "queued-sti-5":<number>,
  "queued-sti-6":<number>,
  "agents-logged-in":<number>,
  "agent-in-release":<number>,
  "agents-in-wrap-up":<number>,
  "agents-idle":<number>,
  "agents-on-acd":<number>,
  "agents-on-non-acd":<number>,
  "agents-talk-too-long":<number>,
  "current-max-talk-time":<number>,
  "tsf":<number>,
  "acd-in-calls":<number>,
  "answered-calls":<number>,
  "abandoned-calls":<number>,
  "avg-time-abandoned":<number>,
  "max-time-abandoned":<number>,
  "interflow-out":<number>,
  "avg-time-interflow":<number>,
  "max-time-interflow":<number>,
  "interflow-in":<number>,
  "rph":<number>,
  "avg-acd-talk-time":<number>,
  "max-configured-acd-talk-time":<number>,
  "interval-max-queue-time":<number>,
  "interval-avg-queue-time":<number>,
  "asa":<number>,
  "required-agents":<number>,
  "tasa":<number>,
  "accepted-calls":<number>,
  "overflowed-in-calls-answered":<number>,
  "calls-answered-before-tasa":<number>,
  "calls-answered-after-tasa":<number>,
  "total-talk-time":<number>,
  "total-wrap-up-time":<number>,
  "longest-acd-talk-time":<number>,
  "overflowed-in-calls-interflowed-out":<number>,
  "overflowed-in":<number>,
  "overflowed-in-calls-abandoned":<number>,
  "abandoned-within-tasa":<number>,
  "abandoned-after-tasa":<number>,
}
```

```

"transferred-in-calls":<number>,
"transferred-out-calls":<number>,
"calls-answered-in-other-group":<number>,
"group-calls-answered-in-other-group":<number>,
"overflowed-calls-answered-in-other-group":<number>,
"queued-emails":<number>,
"queued-emails-above-tasa":<number>,
"current-email-avg-que-start-time":<number>,
"current-email-max-que-start-time":<number>,
"email-sti-1":<number>,
"email-sti-2":<number>,
"email-sti-3":<number>,
"email-sti-4":<number>,
"email-sti-5":<number>,
"email-sti-6":<number>,
"emails-accepted":<number>,
"emails-answered":<number>,
"emails-interflow-out":<number>,
"emails-answered-in-other-group":<number>,
"email-interval-avg-queue-time":<number>,
"email-avg-talk-time":<number>,
"email-interval-max-queue-time":<number>,
"email-longest-talk-time":<number>
}

```



### Notes

- In this message, data is aggregated according to the current interval. The interval is specified in the Connect Contact Center Director **Groupings > Groups > General** tab > **Interval Time** field.
- The current-email-avg-que-start-time and current-email-max-que-start-time give only the time stamp when e-mail was queued. Subtract this from the current time to calculate duration.
- The statistics are only for inbound ACD voice calls and/or e-mails for the group. The statistics for the outbound calls or chat are not exposed currently.
- For a description of the statistics, please refer to the Group Reports Data Fields topic in the ShoreWare Agent Manager help file (realtime.chm).

## Group Statistics

This provides interval based group statistics.

### Event JSON Message

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"group-stats",
  "sub-topic":"group-stats",
  "group-id":<grp id>,
  "group-name":<group name>,
  "start-time":<time string>,
  "interval-length":<minutes>,
  "queued-calls":<number>,
  "queued-calls-above-tasa":<number>,
  "current-avg-que-time":<number>,

```

```

"current-max-que-time":<number>,
"queued-sti-1":<number>,
"queued-sti-2":<number>,
"queued-sti-3":<number>,
"queued-sti-4":<number>,
"queued-sti-5":<number>,
"queued-sti-6":<number>,
"agents-logged-in":<number>,
"agent-in-release":<number>,
"agents-in-wrap-up":<number>,
"agents-idle":<number>,
"agents-on-acd":<number>,
"agents-on-non-acd":<number>,
"agents-talk-too-long":<number>,
"current-max-talk-time":<number>,
"tsf":<number>,
"acd-in-calls":<number>,
"answered-calls":<number>,
"abandoned-calls":<number>,
"avg-time-abandoned":<number>,
"max-time-abandoned":<number>,
"interflow-out":<number>,
"avg-time-interflow":<number>,
"max-time-interflow":<number>,
"interflow-in":<number>,
"rph":<number>,
"avg-acd-talk-time":<number>,
"max-configured-acd-talk-time":<number>,
"interval-max-queue-time":<number>,
"interval-avg-queue-time":<number>,
"asa":<number>,
"required-agents":<number>,
"tasa":<number>,
"accepted-calls":<number>,
"overflowed-in-calls-answered":<number>,
"calls-answered-before-tasa":<number>,
"calls-answered-after-tasa":<number>,
"total-talk-time":<number>,
"total-wrap-up-time":<number>,
"longest-acd-talk-time":<number>,
"overflowed-in-calls-interflowed-out":<number>,
"overflowed-in":<number>,
"overflowed-in-calls-abandoned":<number>,
"abandoned-within-tasa":<number>,
"abandoned-after-tasa":<number>, "transferred-in-calls":<number>,
"transferred-out-calls":<number>,
"calls-answered-in-other-group":<number>,
"group-calls-answered-in-other-group":<number>,
"overflowed-calls-answered-in-other-group":<number>,
"queued-emails":<number>,
"queued-emails-above-tasa":<number>,
"current-email-avg-que-start-time":<number>,
"current-email-max-que-start-time":<number>,
"email-sti-1":<number>,
"email-sti-2":<number>,
"email-sti-3":<number>,
"email-sti-4":<number>,
"email-sti-5":<number>,
"email-sti-6":<number>,
"emails-accepted":<number>,
"emails-answered":<number>,
"emails-interflow-out":<number>,
"emails-answered-in-other-group":<number>,

```

```
"email-interval-avg-queue-time":<number>,  
"email-avg-talk-time":<number>,  
"email-interval-max-queue-time":<number>,  
"email-longest-talk-time":<number>  
}
```

---

**Notes:**

- In this message, data is aggregated according to the current interval. The interval is specified in Connect Contact Center Director in **Groupings > Groups > General > Interval Time**.
- The current-email-avg-queue-start-time and current-email-max-queue-start-time return the time stamp indicating when e-mail was queued. Use this value along with the current time to calculate duration.
- The statistics are only for inbound ACD voice calls and/or e-mails for the group. The statistics for the outbound calls or chat is not exposed currently.
- For descriptions of the statistics, refer to the Group Reports Data Fields topic in the Realtime.chm file.

# Group Agents Statistics

---

This message is sent for all agents in a group.

## Event JSON Message

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"group-agent-stats",
  "sub-topic":"group-agent-stats",
  "group-id":<grp id>,
  "agent-queue-id":<agent queue id>,
  "group-name":<group name>,
  "agents": [
    {"agent-id":<agent id>,
      "agent-name":<agent name>,
      "agent-number":<agent number>,
      "agent-ext":<agent extension>,
      "agent-state":<state>,
      "state-start-time":<yyyy-mm-dd hh:mm:ss>,
      "ani":<ani>,
      "dnis":<dnis>,
      "release-code":<release code>,
      "wrapup-code":<wrapup code>,
      "acd-calls":< acd calls >,
      "oacd-calls":< oacd calls >,
      "non-acd-calls":< non-acd calls >,
      "chat-calls":< chat calls >,
      "email-calls":< email calls >,
      "held":< held calls >}, ...
  ]
}
```

---



### Notes

- The agent's state, as reported in the agent-state <state> parameter is the agent's current state in only the oldest active ACD interaction among all interactions (inbound voice, outbound voice, chat, or e-mail) currently being handled by the agent.
- If an agent has logged into multiple groups, and more than one of those groups are subscribed for the group-agent-stats message, a separate message is sent for each of the groups an agent is currently logged in to.
- If an agent logs out of a group, and that group is subscribed for the group-agent-stats message, a message with the ID of the agent missing is sent. So, an SDK application must keep track of an agent logging into or out from a group.
- wrapup-code is the last wrap-up code an agent has entered. Because an agent can change the wrap-up code any time before entering the idle state, this wrap-up code field does not appear in the wrap-up state, but displayed as the idle state after wrap-up.
- The following fields report current calls, NOT calls for the current interval: acd-calls, oacd-calls, non-acd-calls, chat-calls, email-calls, held.
- agent-queue-id is optional. This field is only provided when the group is an agent queue.
- For Agent state codes and their descriptions refer to [Agent State Codes](#) on page 66.
- Agent extensions are returned without a dash included in the number. For example, if an agent extension is 555-6778, it is returned as 5556778.
- For details on the various statistics in the message, refer to the Agent Manager help file, which is available from the Help menu in Agent Manager.

## Agent Queue Statistics

This message gives statistics for agent queues.

## Event JSON Message

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<"server time">,
  "topic":<"contact-center">,
  "message":<"agent-queue-stats">,
  "sub-topic":<"agent-queue-stats">,
  "agent-id":<number>,
  "agent-name":<"string">,
  "agent-number":<"string">,
  "agent-extension":<"string">,
  "state":<state>,
  "rph":<number>,
  "asa":<number>,
  "acd-answered":<number>,
  "acd-abandoned":<number>,
  "acd-interflowed-out":<number>,
  "acd-answered-in-other-group":<number>,
  "acd-accepted":<number>,
  "acd-tsrf":<number>,
}
```

```

"acd-queued":<number>,
"acd-longest-time-in-queue": "<string>",
"acd-average-time-in-queue": "<string>",
"acd-average-talk-time":<number>,
"acd-average-abandoned-time":<number>,
"acd-average-interflow-time":<number>,
"oacd-answered":<number>,
"oacd-failed":<number>,
"oacd-pending-in-queue":<number>,
"oacd-queued":<number>,
"oacd-longest-time-in-queue": "<string>",
"oacd-average-time-in-queue": "<string>",
"oacd-average-talk-time":<number>,
"previously-answered-queued":<number>,
"previously-answered-answered":<number>,
"previously-answered-abandoned":<number>,
"total-previously-answered-talk-time":<number>,
"total-previously-answered-queue-time":<number>
}

```



### Notes

- For Agent state codes and their descriptions refer to [Agent State Codes](#) on page 66.
- Agent extensions are returned without a dash included in the number. For example, if an agent extension is 555-6778, it is returned as 5556778.
- For a description of the statistics, refer to the Agent Manager help file, which is available from the Help menu in Agent Manager.

## DNIS Statistics

These statistics provide information about current status of calls received at a DNIS number along with statistical information over the current real-time interval.

### Event JSON Message

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "topic": "contact-center",
  "message": "dnis-stats",
  "sub-topic": "dnis-stats",
  "dnis-id": "<number>",
  "dnis-number":<number>,
  "dnis-name": "<text>",
  "calls-in-queue": <number>,
  "calls-in-queue-above-tasa": <number>,
  "average-queue-time": "<text>",
  "longest-queue-call-start-time": "<time string>",
  "interval-max-queue-time": <number>,
  "calls-answered": <number>,
  "calls-abandoned": <number>,
  "max-wait-time-of-abandoned-calls":<number>,
  "tsf": <number>,
  "tasa":<number>,
  "interval-time":<number>,
  "emails-in-queue": <number>,

```

```

"emails-in-queue-above-tasa": <number>,
"emails-answered": <number>,
"average-email-queue-time": <number>,
"interval-max-email-queue-time": <number>,
"longest-queue-email-start-time": "<time string>",
"chats-in-queue": <number>,
"chats-in-queue-above-tasa": <number>,
"average-chat-queue-time": "< text >",
"longest-queue-chat-start-time": "<time string>",
"interval-max-chat-queue-time": <number>,
"chats-answered": <number>,
"chats-abandoned": <number>,
"max-wait-time-of-abandoned-chats": <number>
}

```



### Notes

- For a description of the statistics, refer to the DNIS Reports Data Fields topic in the ShoreWare Agent Manager help file (realtime.chm).
- The longest-queue-call-start-time, longest-queue-email-start-time, and longest-queue-chat-start-time give only the server time stamp of when call/e-mail/chat was queued. Use this information along with the current time to calculate the duration.

## Daily DNIS Statistics

In these messages, DNIS statistics data is aggregated daily from 12:00 am (midnight), or from the time of the last restart of the Connect Contact Center server.

### Event JSON Message

```

{
  "version": 1,
  "sequence": <sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "topic": "contact-center",
  "message": "daily-dnis-stats",
  "sub-topic": "daily-dnis-stats",
  "dnis-id": "<number>",
  "dnis-number": <number>,
  "dnis-name": "<text>",
  "average-queue-time": "<text>",
  "interval-max-queue-time": <number>,
  "calls-answered": <number>,
  "calls-abandoned": <number>,
  "max-wait-time-of-abandoned-calls": <number>,
  "tsf": <number>,
  "tasa": <number>,
  "interval-time": <number>,
  "emails-answered": <number>,
  "average-email-queue-time": <number>,
  "interval-max-email-queue-time": <number>,
  "average-chat-queue-time": "<text>",
  "interval-max-chat-queue-time": <number>,
  "chats-answered": <number>,
  "chats-abandoned": <number>,
}

```



```
"max-wait-time-of-abandoned-chats":<number>
}
```

## Agent Need Help Statistics

These statistics give information about agents waiting for a supervisor's help. Agents who press the help button at least once are reported in the statistics.

### Event JSON Message

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"agent-need-help",
  "sub-topic":"agent-need-help",
  "agent":[ { "agent-id":<agent ID 1>, "agent-ext":<agent ext 1>,
    "agent-name":<agent 1 name>,"start-time":<start-time> },...
  ]
}
```



#### Note

For a description of the statistics, refer to the Agent Manager help file, which is available from the Help menu in Agent Manager.

## Daily Agent Statistics

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "topic":"contact-center",
  "message":"daily-agent-stats",
  "sub-topic": "",
  "agent-id":<number>,
  "agent-name":<string>,
  "agent-number":<string>,
  "agent-extension":<string>,
  "state":<state>,
  "state-start-time":<time string>,
  "release-code":<string>,
  "active-acd":<number>,
  "active-oacd":<number>,
  "active-chat":<number>,
  "active-email":<number>,
  "non-acd-handled":<number>,
  "acd-answered":<number>,
  "oacd-reserved":<number>,
  "oacd-answered":<number>,
  "chat-answered":<number>,
  "email-answered":<number>,
  "chat-inactivity":<number>,
  "current-group-id":<number>,
  "current-dnis":<string>,
}
```

```
"current-ani":"<string>"
}
```

---

## Call Activity Events

The following sections list basic components.

### Call Table:

```
"call-table": [<call 1>, <call 2>, ...],
```

### Call:

---

```
{
  "media":<Media type>,
  "call-type":<call type>,
  "dnis": "<DNIS>",
  "group": {
    "type":<group type>,
    "id":< id>,
  },
  "call-profile": [
    { "id":<call profile id 1>, "value": "<call profile value 2>" },
    { "id":<call profile id 2>, "value": "<call profile value 2>" },
    ...
  ],
  "connections": [
    { "device": "<device 1>", "state":<connection state> },
    { "device": "<device 2>", "state":<connection state> },
    ...
  ]
}
```

---

### Parameters

- Media type —
  - 0: Unknown
  - 1: Voice
  - 2: Web (Chat)
  - 3: Email
- Call Type —
  - 0: Non-ACD
  - 1: Inbound Voice (ACD)
  - 2: Web (Chat)
  - 3: Email
  - 4: Callback

- 5: Abandoned Callback
- 6: Web Call back
- 7: Dial List
- Group Type — Refer to the Group Type definition in the Agent Activity Event section.
- Call Profile ID —
  - 0: NULL
  - 1: DNIS
  - 2: Caller ID
  - 3: Priority
  - 4: Service ID
  - 5: Customer ID
  - 6: Customer Name
  - 7: ACD Enter Date
  - 8: ACD Enter Time
  - 9: Queue position
  - 10: Average Queue Time (Connect Contact Center Internal Use)
  - 11: Callback Time
  - 12: Callback Destination
  - 13: Session ID (Connect Contact Center Internal Use)
  - 14: Language
  - 15: Media Type
  - 16: Call Type
  - 17: Dial List ID
  - 18: Start Queue Time (Connect Contact Center Internal Use)
  - 19: Agent ID
  - 20: Deprecated
  - 21: Deprecated
  - 22: Execute Request (Connect Contact Center Internal Use)
  - 23: Trunk Number

- 24: Email To
  - 25: Email Connect Contact Center
  - 26: Email Subject
  - 27: Email From
  - 28: Email Reply To
  - 29: Email Sent Date
  - 30: Email Sent Time
  - 31: Email Enter OMS Date (Connect Contact Center Internal Use)
  - 32: Email Enter OMS Time (Connect Contact Center Internal Use)
  - 33: Primary Callback (Connect Contact Center Internal Use)
  - 34: Alternative Callback 1(Connect Contact Center Internal Use)
  - 35: Alternative Callback 2 (Connect Contact Center Internal Use)
  - 36: Last Time to Initiate Callback (Connect Contact Center Internal Use)
  - 37: PBX Call ID
  - 38: Group ID
  - 39: Outgoing Caller ID
  - 40: Stream position (Connect Contact Center Internal Use)
  - 41: Stream Start Time (Connect Contact Center Internal Use)
  - 42: Call GUID
  - 43: Agent Queue ID
  - 44: Outbound Features (Connect Contact Center Internal Use)
  - 45: DNIS Name (currently only populated for chat interactions)
  - 46: Site ID
  - 47: Email Message ID
  - 48: Caller Name
- User defined Call profile fields start at 101.



---

**Note**

User-defined call profile fields are reserved for future use.

---

- User defined Skills start at 1001.
- Language —
  - 0 English (US)
  - 1 Hebrew
  - 2 Russian
  - 3 Arabic (UAE)
  - 4 Spanish (Mexico)
  - 5 Italian
  - 6 English (UK)
  - 7 French
  - 8 German
  - 9 Spanish (Castilian)
  - 10 Swedish
- Connection State —
  - 0: NA
  - 1: NULL
  - 2: Initiated
  - 3: Route Wait
  - 4: Alerting
  - 5: Connected
  - 6: Failed (Deprecated)
  - 7: Held
  - 8: Queued
  - 9: Unknown
  - 10: Silent Monitored
  - 11: Silent Monitoring
  - 12: Barged In
  - 13: Barging In
  - 14: Whisper Blocked (In a whisper coach session, the party who can't hear the whisper)

15: Whispering

16: Whispered

■ Device Type —

1: IRN

2: Service

3: Agent

4: Group

5: Regular device (a Dialable Number, that's not IRN/Service/Group/Agent/IVR)

6: Call Control Script

22: Agent Queue Service

23: Agent Queue Group

24: IVR Port

25: Email Agent Queue Service

26: Email Agent Queue Group



#### Note

The acd-call field in all Call Activity Events is reserved.

## Call Activity Type Change Event

This event is used to show when calls change between ACD and non-ACD.

```
{
  "version":1,
  "timestamp":<"server time">,
  "gmt":<"server time in GMT">,
  "topic":"contact-center",
  "message":"type-change",
  "sub-topic": "",
  "call-id":<ECC call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<"call GUID">,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "old-type":<old call type>,
  "new-type":<new call type>
}
```

## Call Activity Agent Re-insert Event

This event is used when an agent places a callback and gets a busy signal or no answer.

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"agent-reinsert",
  "sub-topic":"",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call ID>,
  "guid":"<call GUID>",
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "agent-id":<agent ID>,
  "cause":<cause code>
}
```

---

## Call Activity Call Cleared Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"call-cleared",
  "sub-topic":"",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":"<call GUID>",
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "abandoned-call":<true|false>,
  "requested-callback":<true|false>,
  "abandoned-callback":<true|false>,
  "abandoned-dev-id":"<the device id that abandoned the call>",
  "abandoned-dev-type":"<the device type that abandoned the call>",
  "abandoned-dev":"<the device number/DN that abandoned the call>",
}
```

---

## Call Activity Conferenced Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"conferenced",
  "sub-topic":"",
  "call-id":<ShoreTel Connect Contact Center call id>,
}
```

---

```

    "pbx-call-id":<PBX call id>,
    "guid":<"<call GUID>">,
    "secondary-call-id":<ShoreTel Connect Contact Center call id>,
    "secondary-pbx-call-id":<PBX call id>,
    "secondary-guid":<"<call GUID>">,
    "resultant-call-id":<ShoreTel Connect Contact Center call id>,
    "resultant-pbx-call-id":<PBX call id>,
    "resultant-guid":<"<call GUID>">,
    <CALL TABLE> //see the call table format above.
    "acd-call":<true|false>, //reserved
    "cause":<cause code>,
    "conferencing-device-id":<conferencing device ID>,
    "conferencing-device-type":<conferencing device type>,
    "conferencing-device":<"<conferencing device/DN>">,
    "conferenced-device-id":<conferenced device ID>,
    "conferenced-device-type":<conferenced device type>,
    "conferenced-device":<conferenced device/DN>,
    "conference-to-device-id":<conference-to device ID>,
    "conference-to-device-type":<conference-to device type>,
    "conference-to-device":<conference-to device/DN>"
  }

```

---

## Call Activity Connection Cleared Event

---

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<"<server time>">,
  "gmt":<"<server time in GMT>">,
  "topic":<"contact-center">,
  "message":<"conn-cleared">,
  "sub-topic":<"">,
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<"<call GUID>">,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "device-out-id":<the device id whose connection is cleared>,
  "device-out-type":<the device type whose connection is cleared>,
  "device-out":<"<the device name/DN whose connection is cleared>">
}

```

---

## Call Activity Delivered Event

---

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<"<server time>">,
  "gmt":<"<server time in GMT>">,
  "topic":<"contact-center">,
  "message":<"delivered">,
  "sub-topic":<"">,
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<"<call GUID>">,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved. Do not use.
}

```



```

    "cause":<cause code>,
    "alerting-device-id":<alerting device id>,
    "alerting-device-type":<alerting device type>,
    "alerting-device":<alerting device DN>,
    "calling-device-id":<calling device id>,
    "calling-device-type":<calling device type>,
    "calling-device":<calling device DN>,
    "agent-chat-url":<url>
  }

```

**Note**

agent-chat-url is the URL of the tomcat server.

## Call Activity Dequeued Event

This event is sent when a call is picked up from queue and thus no longer in queue.

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"dequeued",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "queued-group-internal-id":<group id>,
  "queued-group-type":<group type>
}

```

## Call Activity Diverted Event

This event is sent when a call is redirected, such as when a call is routed from an IVR to an agent.

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"diverted",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "divert-to-group-id":<divert-to group id>,
  "divert-to-group-type":<divert-to group type>,
}

```

```

    "divert-to-device-id":<divert-to device id>,
    "divert-to-device-type":<divert-to device type>,
    "divert-to-device":<divert-to device DN>",
    "divert-from-device-id":<divert-from device id>,
    "divert-from-device-type":<divert-from device type>,
    "divert-from-device":<divert-from device DN>"
  }

```

---

**Note**

Blind transfers generate a Diverted event rather than a transferred event.

---

## Call Activity Established Event

This event is sent when a call is connected, such as when it is delivered to an agent and answered.

---

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"established",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "joining-device-id":<joining-device id>,
  "joining-device-type":<joining-device type>,
  "joining-device":<joining-device DN>,
  "calling-device-id":<calling-device id>,
  "calling-device-type":<calling-device type>,
  "calling-device":<calling-device DN>"
}

```

---

## Call Activity Held Event

```

{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"held",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "device-id":<held-device id>,
  "device-type":<held-device type>,
  "device":<held-device DN>"
}

```

---

## Call Activity Initiated Event

This event is sent when call activity has begun, such as when an outbound call is placed.

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"initiated",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "group-id":<group id>,
  "group-type":<group type>,
  "device-id":<device id>,
  "device-type":<device type>,
  "device":<device DN>
}
```

---

## Call Activity Interflowed Event

This event is sent when a call is rerouted from the ACD to another destination, such as to voicemail or to an IRN.

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"interflowed",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "destination-internal-id":<interflow dest device id>,
  "destination-type":<interflow dest device type>,
  "destination-device":<interflow dest device DN>
}
```

---

## Call Activity IVR App Started Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"ivr-app-started",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "ivr-app-id":<ivr app id>
}
```

---

## Call Activity IVR App Ended Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"ivr-app-ended",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "ivr-app-id":<ivr app id>
}
```

---

## Call Activity No Agent Destination Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"to-no-agent-dest",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "destination-internal-id":<no-agent dest device id>,
  "destination-type":<no-agent dest device type>,
  "destination-device":<no-agent dest device DN>
}
```

---

## Call Activity No Wrap up Event

This event is sent when a non-ACD call is ended.

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"no-wrap",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call ID>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "agent-id":<agent ID>,
  "wrapup-code-id":<wrap up code ID>,
  "wrapup-id-list":<wrapup ID 1>, <wrapup ID 2>, ...
}
```

---

## Call Activity Overflowed Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"overflowed",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "overflow-destination-group-internal-id":<group id>,
  "overflow-destination-group-type":<group type>
}
```

---

## Call Activity Queued Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"queued",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "queued-group-internal-id":<group id>,
  "queued-group-type":<group type>
}
```

---

## Call Activity Retrieved Event

This event is sent when a call is taken off hold. For example, if a call is placed on hold and then retrieved from hold, this event is sent.

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"retrieved",
  "sub-topic":"",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":"<call GUID>",
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "device-id":<device id>,
  "device-type":<device type>,
  "device":"<device DN>"
}
```

---

## Call Activity Routed Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":"<server time>",
  "gmt":"<server time in GMT>",
  "topic":"contact-center",
  "message":"routed",
  "sub-topic":"",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":"<call GUID>",
  <CALL TABLE> //see the call table format above.
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "destination-internal-id":<dest device ID>,
  "destination-type":<dest device type>,
  "destination-device":"<device DN>"
}
```

---

## Call Activity Route Request Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"route-request",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //Call table in the format of "call-table":[<call 1>, <call 2>, ...],
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "irn-id":<IRN device ID>,
  "irn-device":<IRN device DN>
}
```

---

## Call Activity State Change Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"state-change",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  <CALL TABLE> //Call table in the format of "call-table":[<call 1>, <call 2>, ...],
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "monitoring-device-id":<monitoring device ID>,
  "monitoring-device-type":<monitoring device type>,
  "monitoring-device":<monitoring device DN>,
  "monitored-device-id":<monitored device id>,
  "monitored-device-type":<monitored device type>,
  "monitored-device":<monitored device DN>
}
```

---



## Call Activity Transferred Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"transferred",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call id>,
  "guid":<call GUID>,
  "secondary-call-id":<ShoreTel Connect Contact Center call id>,
  "secondary-pbx-call-id":<PBX call id>,
  "secondary-guid":<call GUID>,
  "resultant-call-id":<ShoreTel Connect Contact Center call id>,
  "resultant-pbx-call-id":<PBX call id>,
  "resultant-guid":<call GUID>,
  <CALL TABLE> //Call table in the format of "call-table":[<call 1>, <call 2>, ...],
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "transferring-device-id":<transferring device ID>,
  "transferring-device-type":<transferring device type>,
  "transferring-device":<transferring device DN>,
  "transferred-device-id":<transferred device ID>,
  "transferred-device-type":<transferred device type>,
  "transferred-device":<transferred device DN>,
  "transfer-to-device-id":<transfer-to device ID>,
  "transfer-to-device-type":<transfer-to device type>,
  "transfer-to-device":<transfer-to device DN>
}
```

---

The Call Activity Transferred event is sent only on consultive transfer.

## Call Activity Wrap up Ended Event

---

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp":<server time>,
  "gmt":<server time in GMT>,
  "topic":"contact-center",
  "message":"wrap-ended",
  "sub-topic": "",
  "call-id":<ShoreTel Connect Contact Center call id>,
  "pbx-call-id":<PBX call ID>,
  "guid":<call GUID>,
  <CALL TABLE> //Call table in the format of "call-table":[<call 1>, <call 2>, ...],
  "acd-call":<true|false>, //reserved
  "cause":<cause code>,
  "agent-id":<agent ID>,
  "wrapup-code-id":<wrap up code ID>,
  "wrapup-id-list":[<wrapup ID 1>, <wrapup ID 2>, ...]
}
```

---

**Note**

The wrapup-id-list contains all wrapup codes entered by the user.

## Call Activity Wrap up Code Event

```
{
  "version":1,
  "sequence":<sequence number between 0 and 4294967295>,
  "timestamp": "<server time>",
  "gmt": "<server time in GMT>",
  "topic": "contact-center",
  "message": "wrap-code",
  "sub-topic": "",
  "call-id": <ShoreTel Connect Contact Center call id>,
  "pbx-call-id": <PBX call ID>,
  "guid": "<call GUID>",
  <CALL TABLE> //Call table in the format of "call-table": [<call 1>, <call 2>, ...],
  "acd-call": <true|false>, //reserved
  "cause": <cause code>,
  "agent-id": <agent ID>,
  "wrapup-code-id": <wrap up code ID>
}
```

## Agent State Codes

Refer to the following table for agent state codes and their descriptions.

Agent State Code	Description
0	Logged Out
1	Idle
2	ACD alerting
3	ACD talking
4	Wrap up
5	Non-ACD Incoming
6	Non-ACD outgoing
7	Release
8	Non-ACD outgoing while in release

## Cause Codes

Refer to the following table for cause codes.

Cause Code	Description
0	UNKNOWN
1	BUSY
2	CALL_CANCELLED
3	MAINTENANCE
4	INTERFLOW
5	REDIRECTED
6	RESRCS_NOT_AVAILABLE
7	SILENT_MONITOR
8	TIMEOUT
9	TRANSFER
10	DIVERTED
11	RESUMED
12	LOGIN
13	OVERFLOW
14	END_OF_WRAP_UP
15	LAST_AGENT_LOGOUT
16	PBX_FAILURE
17	CONFERENCE
18	ROUTED
19	INCOMPLETE
20	ABANDONED_IN_QUEUE
21	REINSERTED_CALL_BACK
22	REINSERTED_CBS_FAIL
23	REINSERTED_CBS_NO_ANSWER
24	REINSERTED_CBS_BUSY
25	DUMMY_CALL
26	BARGE_IN
27	WHISPER
28	BACK_TO_AGENT_QUEUE
29	MOVE_TO_AGENT_QUEUE

Cause Code	Description
30	SEND_TO_OTHER_AGENT_QUEUE
31	CHAT_INACTIVITY
32	AGENT_INACTIVITY
33	EMAIL_REPLY
34	EMAIL_NO_REPLY
36	CONSULTATION
37	NO_AVAILABLE_AGENTS

## Sample Exchange between the SDK and a 3rd Party Application

Application to SDK	SDK to Application
<pre>{   "version":1,   "topic":"contact-center",   "request-id":1,   "message":"authenticate",   "user":"&lt;configured event feed user name&gt;",   "password":"&lt; configured event feed password encoded using md5 hash&gt;" }</pre>	
	<pre>{   "version":1,   "topic":"contact-center",   "request-id":1,   "result":0 }</pre>

Application to SDK	SDK to Application
<pre>{   "version":1,   "topic":"contact-center",   "message":"subscribe-events",   "request-id":3,   "subscribe": [     ["ecc","entity", ["agent"] ]   ] }</pre>	
	<pre>{   "version":1,   "timestamp":"2009-01-01 11:00:01",   "topic":"contact-center",   "message":"subscribe-events",   "request-id":3,   "result":0,   "subscriptions": [     ["ecc","entity", ["agent"] ]   ] }</pre>
	<pre>{   "version":1,   "timestamp":"2009-01-01 11:00:02",   "topic":"contact-center",   "message":"entity-snapshot",   "sub-topic":"entity",   "filter":"agent",   "agents":[ {"1001", "john doe"}, {"1002", "jane doe"}] }</pre>

Application to SDK	SDK to Application
	<pre>{   "version":1,   "timestamp":"2009-01-01 11:00:03",   "topic":"contact-center",   "message":"entity-update",   "sub-topic":"entity",   "filter":"agent",   "update-type":"update",   "agents":[ {"1001",     "john smith"}] }</pre>
	<pre>{   "version":1,   "timestamp":"2009-01-01 11:00:04",   "topic":"contact-center",   "message":"entity-update",   "sub-topic":"entity",   "filter":"agent",   "update-type":"add",   "agents":[ {"1003",     "joe smith"}] }</pre>

Application to SDK	SDK to Application
<pre>{   "version":1,   "topic":"contact-center",   "message":"unsubscribe-events",   "request-id":4,   "unsubscribe": [     ["ecc","entity", ["agent"]] ]   ] }</pre>	
	<pre>{   "version":1,   "timestamp":"2009-01-01 11:00:05",   "topic":"contact-center",   "message":"unsubscribe-events",   "request-id":4,   "result":0 }</pre>





---

## Event Feed Troubleshooting

If you are unable to connect to the event feed port, perform the following troubleshooting steps:

- Verify that you have received the appropriate license, and installed/configured it using Enterprise Contact Center Director.
- Verify the IP address of the Connect Contact Center server.
- Verify that you can ping the IP address of the Connect Contact Center server.
- Verify that port 31458 and port 31456 on the Connect Contact Center server are not blocked by any firewalls.
- Verify that you can connect to the SDK's port using Telnet and, if so, it generates a connection accepted entry in the Windows Application Event Log on the Connect Contact Center server.
- Verify that the user name and password to access the Event Feed is configured on the Contact Center server. Also, verify that you use the same credentials to connect and encode the password using MD5.
- If your SDK application seems to connect successfully with the TCPport of the SDK but sending authentication request times out, verify that there is a connection accepted entry in the Windows Application Event Log on the Connect Contact Center server. If there is no such entry in the Windows Application Event Log, contact Mitel TAC to diagnose why the SDK might not be accepting the connection and responding.

