Understanding the Data Discrepancy between Different Cisco Unified CCX Reports

Cisco Unified Contact Center Express (Unified CCX) provides several reporting capabilities which includes several details of Contact Center information such as Call information – Calls arrivals, queuing details, Call treatment, Agent information such as Agent states, Call handling rates and so on.

Unified CCX reporting capabilities include both historical and real time reports and also reports from Agent, Supervisor, and System perspective. Following variants of reports are available in Unified CCX:

1. Unified CCX Historical Reporting – This stores Call records, Agent records, Call Variables and so on in the Unified CCX database and can be viewed through Unified CCX Historical Reporting Client. This report is historical in nature and provides reports mainly from System perspective.

2. Unified CCX Real time reporting – This tool can be launched from Cisco Unified Application Administration by navigating to **Tools -> Real Time Reporting**. The Applet tool provides real time reports and gives a picture of how the call center is functioning on that particular day. The statistics for that day are reset every night. These reports are stored in the memory and are pulled through RMI from the Applet.

3. Agent and Supervisor reports (also referred to as "logs") – These reports give a perspective from Agent and Supervisor and are populated by Desktop applications (CAD/CSD) through ACMI.

This document is meant to list out the legitimate differences/discrepancies among the various reports of Unified CCX. These differences are not limitations of the product but are the inherent differences in the way these various reports were designed and are intended to work.

NOTE: This document has been developed keeping "**Unified CCX Release 7.0**" as a reference and some of the following items may/may not hold good for earlier or subsequent releases.

Disclaimer regarding Time Difference: There might be a difference of 1-3 seconds in Queue time, Ring time, Talk, Work and Call Duration between the CAD Call logs, Historical reports, and Real time reports.

Calls Reported

In most of the cases, we see a very obvious discrepancy while comparing 2 different reports. This might be due to different types of calls each report takes into account. Find below is a reference chart, which lists the different types of calls; several reports that are frequently used are taken into account.

Report Type	Report Name	ACD	ACD + Non-ACD	Inbound/ Outbound*
Historical Reports	Contact Service Queue Activity Report	X		Inbound
	CSQ Agent summary Report	X		Inbound
	Agent Detail Report		X	Both
	Agent Call Summary Report		X	Both
	Agent Summary Report	X	X	Inbound
	Detailed Call by Call CCDR Report		X	Both
	Detailed CSQ, Call, Agent Report		X	Both

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Report Type	Report Name	ACD	ACD + Non-ACD	Inbound/ Outbound*
CAD/ CSD Reports	Agent Statistics		X	
	Agent Call Log		X	Both
	Overall, CSQ & Resource Stats	X		Inbound
Real Time Reporting	Contacts, Contacts Summary		X	Both

* These are calls made by agent and do not include Outbound preview calls

Queue Time

Question: Why the 'Queue time' in CSQ/Call related Historical reports and CAD history window do not match?

Answer: Queue time on the CAD History window (this would be the CSQ entry on c all history) has only the time spent by the caller in the queue whereas the Queue time in Historical CSQ/Call reports include the time spent by the caller in the queue + the time ringing at the agent phone.

Call Flow

Caller [9369] calls into Call Center Route Point [2233], which queues the call in CSQ and routes to Agent [agent2 x9368]. Agent talks to the caller and drops the call.
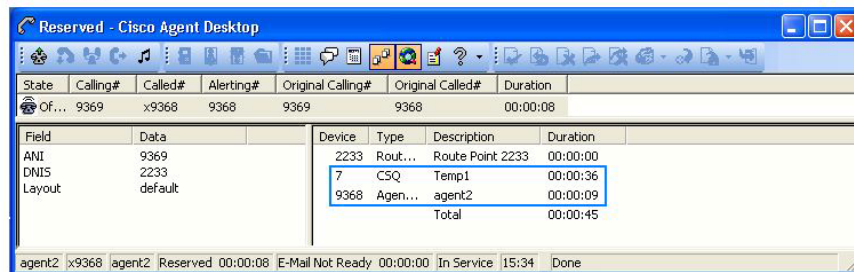

Figure 1: Queue Times in Detailed CCDR and CAD History

Talk Time

Question: Why 'Talk time' in Historical Agent reports and 'Agent call logs' do not match?

Answer: For an ACD call, Talk time on the Agent Call logs (Call Duration on the Agent Call Log) = Talk time + hold time + Queue Time on the Historical CCDR reports.

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For non-ACD calls, in the Historical Agent reports hold time would not be populated and Talk time would match with the Call duration in the Agent Call logs.

Call Flow

Caller [9369] calls into Call Center Route Point [2233] which queues the call in CSQ and routes to Agent [agent2 x9368]. Agent talks to the caller, then holds the call, resumes and talks for some more time and drops the call.

T* -- Contact Type 1=incoming, 2=outgoing, 3=internal ,
            4=redirect, 5=transfer-in
D** -- Contact Disposition   1=abandoned, 2=handled,
            4=aborted, 5 and above = rejected
T+ -- Originator/Destination Type 1 = agent, 2 = device, 3 = unknown

Detailed Call by Call CCDR Report
5/28/2008 12:00:00 AM -   5/29/2008 12:00:00 AM

Node ID - Session ID - Sequence No.	Start Time End Time	Contact T* D**	Originator T+ ID	DN	Destination T+ ID	DN	Called Number	Original CalledNo	Application Name	Queue Time	Talk Time	Hold Time	Work Time
1-58000000010-0	5/28/2008 3:56:48PM 5/28/2008 3:57:13PM	1 2	3	9369	2	1241	2233	2233	ICD	0:00:10	0:00:10	0:00:05	0:00:00

Agent Detail Report
5/28/2008 12:00:00 AM - 5/29/2008 12:00:00 AM

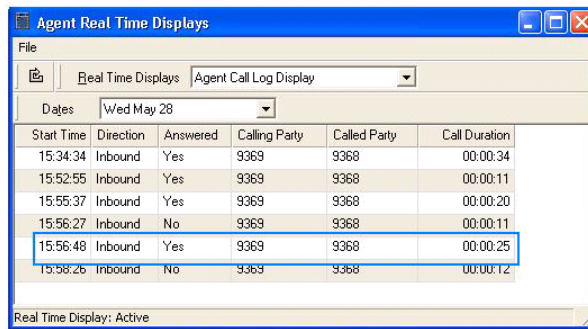| Agent Name	Extension	Call Start Time Call End Time	Duration	Called Number	Call ANI	Call Routed CSQ	Other CSQs	Call Skills	Talk Time	Hold Time	Work Time	Call Type
agent2	9368	5/28/2008 3:56:48PM 5/28/2008 3:57:13PM	0:00:25	2233	9369	Temp1		English	0:00:10	0:00:05	0:00:00	Inbound ACD

Figure 2: Times for an ACD call between Detailed CCDR Agent Detail and Agent Call logs

Internal vs. Outbound Calls

When Agent1 makes a direct call to ACD extension of Agent2, Agent Call logs and Historical Agent reports indicate that this call leg is an outbound call for Agent1 and Inbound call for Agent2 as it is from the perspective of the agent who made/received the call but the CCDR report shows this as an 'Internal' c all from the perspective of the system. This is also true for consult legs made during transfer/conference from one agent to another.

Call Flow

Agent [agent1 x9367] makes a direct call to ACD extension of another Agent [agent2 x9368], agent2 answers and talks for some time and then drops the call.

Detailed Call by Call CCDR Report
5/28/2008 12:00:00 AM - 5/29/2008 12:00:00 AM

Node ID - Session ID - Sequence No.	Start Time End Time	Contact T* D**	Originator T+ ID	DN	Destination T+ ID	DN	Called Number	Original CalledNo	Application Name	Queue Time	Talk Time	Hold Time	Work Time
1-58000000018-0	5/28/2008 4:25:09PM 5/28/2008 4:25:39PM	3 2	1 agent1	9367	1 agent2	9368	9368	9368					0:00:30

Agent Detail Report
5/28/2008 12:00:00 AM - 5/29/2008 12:00:00 AM

Agent Name	Extension	Call Start Time Call End Time	Duration	Called Number	Call ANI	Call Routed CSQ	Other CSQs	Call Skills	Talk Time	Hold Time	Work Time	Call Type
agent1	9367	5/28/2008 4:25:09PM 5/28/2008 4:25:39PM	0:00:30	9368	9367				0:00:30			Outbound
agent2	9368	5/28/2008 4:25:09PM 5/28/2008 4:25:39PM	0:00:30	9368	9367				0:00:30			Inbound Non-ACD

Figure 3: Internal vs. Inbound/Outbound call b/w Historical reports and Agent Call logs

Consult Transfer

A simple Consult transfer can cause a lot of misunderstanding in reading reports individually as it is reported in different ways in different reports. Consider the following Call flow:

Call Flow

Caller [1125] calls into Call Center Route Point [2234] which queues the call in CSQ and routes to Agent [agent1 x1107]. Agent talks to the caller for some time, initiates a consult transfer to another Agent [agent2 x1124] talks to agent2 for some time and completes the transfer. Agent2 talks to the caller for some time and then drops the call. This will be reported as follows:

1. Detailed CCDR (system perspective):
        a. 1 record for call b/w caller and agent1 with type =1 (incoming)
        b. 1 record for the consult call b/w 2 agents with type =3 (internal)
        c. 1 record for the call b/w caller and agent2 with type =5 (transferred-in)

2. Historical Agent Detail report (Agent perspective):
        a. For agent:
                i. 1 record for call with caller (Inbound + transfer-out to indicate that this call was transferred out to some other agent)
                ii. 1 record for the consult call with agent2 (outbound)

        b. For agent2:

i. 1 record for the consult call with agent1 (Inbound Non-ACD [consult calls are always Non ACD in HR reports])

ii. 1 record for the call with the caller (Inbound + transfer-in to indicate that this was a transferred call that was received)

3. Agent Call logs (Agent perspective):

    a. For agent1:

        i. 1 record for the call with caller (Inbound)

        ii. 1 record for the consult call with agent2 (Outbound)

    b. For agent2 :

        i. 1 record to indicate both the consult call and the eventual call with caller after agent1 completes the transfer (Inbound)

Note: Agent call logs do not report calls as ACD/Non-ACD and for the above single record 3b(i), the call duration for transferred agent = talk time of consult call with transferring agent + talk time with original caller.

T* -- Contact Type 1=incoming, 2=outgoing, 3=internal ,
    4=redirect, 5=transfer-in
D** -- Contact Disposition 1=abandoned, 2=handled,
    4=aborted, 5 and above = rejected
T+ -- Originator/Destination Type 1 = agent, 2 = device, 3 = unknown
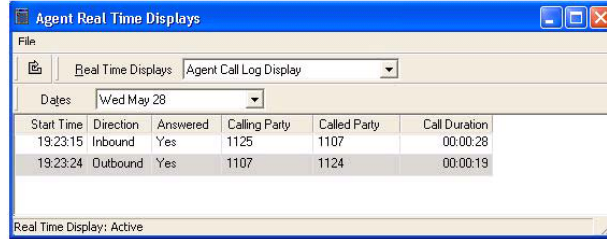
Detailed Call by Call CCDR Report
5/28/2008 7:22:00 PM -   5/29/2008 12:00:00 AM

Node ID - Session ID - Sequence No.	Start Time End Time	Contact T*	D**	Originator T+	ID	DN	Destination T+	ID	DN	Called Number	Original CalledNo	Application Name	Queue Time	Talk Time	Hold Time	Work Time
1-60000000004-0	5/28/2008 7:23:05PM 5/28/2008 7:23:43PM	1	2	3		1125	2		5003	2234	2234	ICD	0:00:13	0:00:04	0:00:18	0:00:00
1-60000000004-1	5/28/2008 7:23:43PM 5/28/2008 7:23:52PM	5	2	3		1125	1	agent2	1124	1124	1124			0:00:09		
1-60000000006-0	5/28/2008 7:23:24PM 5/28/2008 7:23:43PM	3	2	1	agent1	1107	1	agent2	1124	1124	1124			0:00:19		

Agent Detail Report
5/28/2008 7:22:00 PM -   5/29/2008 12:00:00 AM

Agent Name	Extension	Call Start Time Call End Time	Duration	Called Number	Call ANI	Call Routed CSQ	Other CSQs	Call Skills	Talk Time	Hold Time	Work Time	Call Type
agent1	1107	5/28/2008 7:23:15PM 5/28/2008 7:23:43PM	0:00:28	2234	1125	Temp1		English	0:00:04	0:00:18	0:00:00	Inbound ACD, Transfer-Out
agent1	1107	5/28/2008 7:23:24PM 5/28/2008 7:23:43PM	0:00:19	1124	1107				0:00:19			Outbound

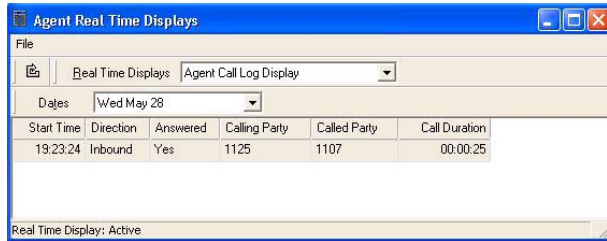| Agent Name	Extension	Call Start Time Call End Time	Duration	Called Number	Call ANI	Call Routed CSQ	Other CSQs	Call Skills	Talk Time	Hold Time	Work Time	Call Type
agent2	1124	5/28/2008 7:23:24PM 5/28/2008 7:23:43PM	0:00:19	1124	1107				0:00:19			Inbound Non-ACD
agent2	1124	5/28/2008 7:23:43PM 5/28/2008 7:23:52PM	0:00:09	1124	1125				0:00:09	0:00:00	0:00:00	Inbound ACD, Transfer-In

Figure 4: Consult Transfer in various reports

RNA Scenario

In case of Ring No Answer (RNA), Answered flag is 'No' in Agent Call logs. In Historical Detailed CCDR report, the disposition is marked with the eventual result of the call such as handled (if handled by next agent), abandoned etc; and the Historical record representing the RNA call leg is also shown with this disposition.
That is, if a call is routed to agent1 which goes ring no answer and goes to agent2 who answers it. Then in CCDR report, there will be 2 rows indicating call each to the two agents. Contact disposition is set to 2 (handled) for both the rows but the talk time for RNA agent (agent1) will be 0.

Voicemail Scenario

Question: Are there any Missing legs from Historical CCDR reports which are present in Agent call logs?

Answer: If a non-ACD (calls apart from that from queue) call is presented to an agent which goes unanswered and if Voicemail is configured on no answer (or if forwarded to any other non Unified CCX device), then the CAD log will have 1 Inbound, unanswered call with duration = ring time and Historical reports will not report this call.

Login/Logout times

Login time in Historical Agent State Detail report will always be 0 as the agent is immediately put to "Not ready" after Login. In the CAD Agent State logs, Login time is calculated as duration between the time when Agent desktop initiates a connection to CCX and the time before he is moved to 'Not ready', So it would be greater than 0.

Logout time duration is left blank in HR reports and is shown as 0 in CAD reports.

In case of a fail-over; CAD Agent state logs will show a logout time before in time than that of Historical Agent state detail report (up to 5 sec before) as CAD detects fail-over before CCX Engine does and writes the logout record into the CCX Database.

Contact Dispositions in Cisco CCX Real-Time Reports and Historical Reports

The following section clarifies contact dispositions on various Unified CCX real-time reports and historical reports:

- Many real-time and historical reports show the disposition of a call. The Contact Service Queue Activity Report (by CSQ or by Interval) shows calls as Handled, Abandoned, and Dequeued. The Contact Service Queue Activity Report shows calls as Handled, Abandoned, Dequeued, and Handled by Other.

- Contact that is queued and answered by an agent shows as handled in real-time and historical reports.

- A contact that is queued but abandoned before it is answered by an agent is shown as handled in the Overall Unified CCX Stats real-time report if a SetContactInfo step in the workflow marks the call as handled. The call is shown as abandoned otherwise. The CSQ Unified CCX Stats real-time report shows the call as abandoned in both cases because it does not consider the SetContactInfo step. For more information about the SetContactInfo step, see *Cisco CRS Scripting and Development Series: Volume 2, Editor Step Reference Guide*.

- The historical CSQ reports take into account whether a contact is marked as handled by the SetContactInfo step to determine if a contact is dequeued. The CSQ IP Unified CCX Stats report does not consider the SetContactInfo step. Therefore, if a call is queued, then marked as handled, and then disconnects, the historical CSQ reports shows the call as dequeued on the CSQ Activity Report (by CSQ or by Interval) or as Handled by Other (handled by workflow script) on the CSQ Activity Report. The real-time CSQ Unified CCX Stats report shows it as abandoned.

- If the Dequeue step is used, the CSQ historical reports shows a contact as dequeued on the CSQ Activity Report (by CSQ or by Interval) or as Handled by Other (handled by another CSQ, in this case) on CSQ Activity Report, but only if the contact is marked as handled. If a call is dequeued (by the Dequeue step), and then disconnects without being marked handled, the CSQ historical reports shows the contact as abandoned.

- If a call is dequeued using the Dequeue step and the caller drops, the CSQ Unified CCX Stats real-time report shows the call as dequeued. If a call is dequeued from CSQ1 and is eventually handled by CSQ2, the CSQ Unified CCX Stats report shows the call as dequeued for CSQ1 and handled for CSQ2. If a call is queued on multiple CSQs and is eventually handled by CSQ1, the CSQ Unified CCX Stats report shows the call as handled for CSQ1 and dequeued for all other CSQs.

Outbound Preview Call

In a normal scenario, system delivers an outbound 'preview' call to an Agent which pops-up on an Agent CAD. If the agent wishes to take the preview call, he accepts the preview the call. System then makes a real call to the call center customer and connects the agent to the call. Once the customer picks up the call, Agent talks to the customer and then drops it.

For this case; Historical CCDR will have only 1 record in CCDR with Contact Type = 6, calling party as Agent's Extension and called party as Customer's number.

In Agent call logs, we will have 2 rows, both classified as outbound calls. The First row will indicate the preview call to Agent with calling party as <System> and called party as Agent. The Second row will indicate the call b/w Agent and customer with calling party as Agent and called party as Customer's number.

Talk time in Historical CCDR report will be the time Agent talks to the customer. In Agent Call Logs, for the preview c all, call duration will be the time preview is presented to the agent and the call the duration for the actual call will include the time it rings at the customer's phone + the talk time between agent and customer.

Call Flow

System presents a preview call to Agent [outbound1 x1010] who accepts the preview call. An actual call is made to customer [x1125]. Customer answers the call; agent talks to customer for a while and drops the call.

T* -- Contact Type 1=incoming, 2=outgoing, 3=internal ,
             4=redirect, 5=transfer-in
D** -- Contact Disposition   1=abandoned, 2=handled,
             4=aborted, 5 and above = rejected
T+ -- Originator/Destination Type 1 = agent, 2 = device, 3 = unknown

Detailed Call by Call CCDR Report
5/29/2008 1:05:00 PM - 5/30/2008 12:00:00 AM

Node ID - Session ID - Sequence No.	Start Time End Time	Contact T* D**	Originator T+ ID	DN	Destination T+ ID	DN	Called Number	Original CalledNo	Application Name	Queue Time	Talk Time	Hold Time	Work Time
1-37000011966-0	5/29/2008 1:05:28PM 5/29/2008 1:06:35PM	6 2	1 outbound1	1010	3		1018	1018		0:00:00	0:00:20	0:00:00	0:00:00

Agent Real Time Displays

File

Real Time Displays: Agent Call Log Display

Dates: Thu May 29

Start Time	Direction	Answered	Calling Party	Called Party	Call Duration
13:05:28	Outbound	Yes	<System>	1010	00:00:36
13:06:04	Outbound	Yes	1010	1018	00:00:31

Real Time Display: Active

References:

- "Cisco Unified CCX Historical Reporting Administrator and Developer Guide" – Provides details about each of the Historical reports and FAQ sections answer some of the important questions.
- "Cisco Unified CCX Administration Guide" - Section regarding 'Reporting on Real-Time Unified COX Data' provides details about each of the real time reports.
- "Cisco Agent Desktop User Guide" - Provides details regarding the reports provided in Cisco Agent Desktop.
- "Cisco Supervisor Desktop User Guide" – Provides details regarding the reports provided in Cisco Supervisor Desktop.