

# TCD Table Shows Wrong Duration When Call Is Abandon In Queue

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## Introduction

This document describes troubleshoot of Termination call detail (TCD) shows wrong duration when call is abandoned in queue.

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## Problem

TCD table shows wrong duration when the call is abandoned in queue.

This issue was found when TCD table was used for report purposes. Call duration field shows wrong information in Voice Response Units (VRU) leg of call abandon in queue scenario.

e.g. when calls arrives in Cisco Unified Customer Voice Portal (CVP) and is dropped in the queue after 15 seconds by caller.

In this case, there are two records in TCD:

- Switch leg which has correct value of 15 seconds,
- VRU leg shows 36 seconds. (Adds 20 seconds delay).

So, VRU leg in this scenario for caculation of call duration in the queue is not correct.

```
--and CallDisposition in (1, 2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 15, 28, 29, 30, 31, 34, 19)
order by rck, RouterCallKeySequenceNumber

select DateTime, Variable1, Variable3, Variable9, Variable10, CallDisposition, DigitsDialed, RouterCallKey rck, RouterCallKeySequenceNumber rcksn, PrecisionQueueID, Duration, *
from Termination_Call_Detail
where RouterCallKeyDay = 152005
and RouterCallKey in ('214', '215', '216')
order by rck, RouterCallKeySequenceNumber

select RouterCallKeySequenceNumber rcksn, * from Route_Call_Detail
where DateTime >= '2017-03-06 15:15:00'
```

DateTime	Variable1	Variable3	Variable9	Variable10	CallDisposition	DigitsDialed	rck	rcksn	PrecisionQueueID	Queue	ResurveyKey	HfDomainID	AgentGroupTargetID	SkillGroupSkillTargetID
2017-03-06 15:23:03.697	NULL	NULL	NULL	NULL	13	75101	214	0	NULL	15	8049164147482	1	NULL	NULL
2017-03-06 15:23:23.690	256_048	NULL	N0110 0100481	01256	13	75101	214	1	NULL	36	8049164147482	1	NULL	NULL
2017-03-06 15:23:23.690	NULL	NULL	NULL	NULL	13	75101	214	1	NULL	36	8049164147482	1	NULL	NULL

In normal call flow, this is what happens:

1. CVP has two dialogs with ICM, DLG#1 is for SIP leg and DLG#2 is for IVR-leg.
2. If caller disconnects, SIP leg gets disconnected and a **CALL\_STATE\_EVENT** with **eventId=DISCONNECT** is set to ICM for DLG#1.
3. CVP sends SIP BYE to VXML Gateway for the IVR (remote disconnect).
4. VXML Gateway submits back to VXML application with event as **telephone.hangup**.
5. VXML application completes and invokes subdialog return.
6. VXML Gateway invokes submitback for main dialog towards CVP-IVR. As part of that , it sends **SCRIPT\_RESULT** to CVP-IVR in GET/POST request. This is also used to release CVP IVR license.
7. IVR- VXML Gateway is vxml/http interface, which works in req/resp, with CVP-IVR acts as server and VXML Gateway acts as client.
8. VXML Gateway sends **SCRIPT\_RESULT** in the GET/POST request to CVP-IVR and the same is sent to ICM. This is also used to release CVP IVR license.
9. CVP sends **CALL\_STATE\_EVENT** with **eventId=DISCONNECT** is set to ICM forDLG#2 (i.e. IVR leg).

## Troubleshoot

Step 1. Created custom HelloWorld and recreated this issue in lab. Switch Leg shows TCD duration 22 and VRU leg shows TCD duration 50 seconds.

Switch leg - DID=1577566

VRU Leg - DID=1577567

VRU PIM logs shows:

```
17:04:31:861 PG1B-pim1 Trace: PG->VRU:RUN_SCRIPT_REQ(175 bytes):DID=1577567 SendSeq#=1 InvID=1
ScriptID=GS,Server,V ScriptConfig= ANI=110026 CED= RCK=236 RCKDay=152008 RCKSeq#=1
CallGUID=5759758000010000000000213E6D137A.
```

22 seconds later, CVP sends event report disconnect.

This is where caller dropped call in queue. So, for switch leg we see duration 22.

```
17:04:53:106 PG1B-pim1 Trace: VRU->PG:EVENT_REPORT(22 bytes):DID=1577566 SendSeq#=3
EventCode=Disconnect(6) CauseCode=NormalComplete(1).
```

```
17:04:53:106 PG1B-pim1 Trace: ToRouter_CallEventReport:CALL_EVENT_REPORT RCID=5009 PID=5004
DID=1577566 DIDRelSeq#=2 LabelIndex=0 Event=6 DialogEnds=1 Cause=1.
```

22 + 10 = 32 seconds later, PG sends cancel message to VRU to terminate VRU leg as per the registry setting (**DelayedScriptResponseTimeout**). This registry key comes in the picture because there was no run script result from CVP after VRU leg was disconnected.

```
17:05:03:385 PG1B-pim1 Trace: PG->VRU:CANCEL(20 bytes):DID=1577567 SendSeq#=2 InvID=2
RequestID=1.
```

```
17:05:03:385 PG1B-pim1 Trace: ProcessDialogFail:DIALOG_FAIL RCID=5009 PID=5004 FailureType=2
NumOfEvents=1 DID=1577566 DIDRelSeqNo=1 ReasonCode=18.
```

```
17:05:03:385 PG1B-pim1 Trace: VRU->PG:DIALOGUE_FAILURE_CONF(20 bytes):DID=1577567 SendSeq#=2
```

InvID=1 ErrorCode=Operation Canceled (34).

17:05:03:385 PG1B-pim1 Trace: PG->VRU:RELEASE(16 bytes):DID=1577567 SendSeq#=3 Cause=0

Now, after  $22 + 10 + 18 = 50$  seconds later (which is ~49 in TCD), CVP sends event report to ICM and this is what is shown in TCD for VRU leg.

17:05:21:277 PG1B-pim1 Trace: VRU->PG:EVENT\_REPORT(22 bytes):DID=1577567 SendSeq#=3  
EventCode=Disconnect(6) CauseCode=NormalComplete(1). 17:05:21:277 PG1B-pim1 Trace:  
ToRouter\_CallEventReport:CALL\_EVENT\_REPORT RCID=5009 PID=5004 DID=1577567 DIDRelSeq#=2  
LabelIndex=0 Event=6 DialogEnds=1 Cause=1.

Step 2. Based on this analysis, issue appeared to be between VXML Application and VXML Gateway or VXML

gateway and CVP/IVR

Here is the deviation which is caused by VXML Gateway not Sent GET/POST req. with **SCRIPT\_RESULT**.

1. CVP has two dialogs with ICM, DLG#1 is for SIP leg and DLG#2 is for IVR-leg
2. Caller disconnects, SIP leg gets disconnected and a **CALL\_STATE\_EVENT** with **eventId=DISCONNECT** is set to ICM forDLG#1
3. CVP sends SIP BYE to VXMLGW for the IVR (remote disconnect).
4. VXMLGW doesn't send **SCRIPT\_RESULT** and hence ICM times out after 10s and sends **ICM\_RELEASE** to CVP which is received by CVP-IVR.
5. At this stage, CVP-IVR will start timer (mentioned below) and continues to wait for response from VXMLGW.
6. As no **SCRIPT\_RESULT** is received, the timer fires in CVP and IVR will start cleanup the client session that VXMLGW had created for this call.
7. After timer is expired, CVP sends **CALL\_STATE\_EVENT** with **eventId=DISCONNECT** is set to ICM forDLG#2 (i.e. IVR leg).

Timer is IVR.TimerTaskInterval. This is in ivr.properties.

```
/**
 * Property: Interval between timed tasks e.g. removing orphaned task
 * This shouldn't be too long because of DFLT_VB_CALL_DISCONNECT_TIMEOUT_SECS
 * For a disconnected call, in the worst case, it's not cleaned up for 17 (10 for
 * DFLT_VB_CALL_DISCONNECT_TIMEOUT_SECS and 7 for DFLT_TIMER_TASK_INTERVAL_SECS)
 * seconds. Later, might want to have a separate thread just to handle Disconnected
 * calls if this worst case timeout (17 secs) is too long.
 */
```

Compared working 'HelloWorld' and 'CustomHelloWorld' application logs and found that Subdialog returns to main dialog after receives telephone.hangup event.



Jun 22 00:29:02.670: //1122350//HTTPC://httpc\_send\_ev: event sent to HTTP Client:

Jun 22 00:29:02.670: method (GET), url  
(http://10.66.75.179:8000/cvp/VBServlet?MSG\_TYPE=CALL\_RESULT&CALL\_ID=98A53E04561811E7A43AB167D81A2367&CALL\_SEQ\_NUM=2&ERROR\_CODE=1)

## Logs in Non-Working CustomHelloWorld.

```
----- new page request -----
-----
Request Received on: 06/22/2017 11:21:28.325

----- HTTP Request Headers -----

Header Name = "content-type" Header Value = "application/x-www-form-urlencoded"
Header Name = "cookie" Header Value = "$Version=0; JSESSIONID=6F183284984644E8944D43EB6EA16646; $Path=/CVP/"
Header Name = "connection" Header Value = "close"
Header Name = "host" Header Value = "mediaserver11:7000"
Header Name = "content-length" Header Value = "121"
Header Name = "accept" Header Value = "text/vxml, text/x-vxml, application/vxml, application/x-vxml, application/"
Header Name = "user-agent" Header Value = "Cisco-IOS-C1861/15.1"

----- Request HTTP Arguments -----

Parameter Name = "audium_vxmlLog" Parameter Value #0 = "|||audio_group$$$initial_audio_group^^^4"
Parameter Name = "audium_type" Parameter Value #0 = "telephone.disconnect"
Parameter Name = "audium_action" Parameter Value #0 = "hangup"

----- VoiceXML Response -----

Response Returned on: 06/22/2017 11:21:28.340
<?xml version="1.0" encoding="UTF-8"?>
<vxml version="2.0" xml:lang="en-US">
  <catch event="vxml.session.error">
    <exit />
  </catch>
  <catch event="telephone.disconnect.hangup">
    <exit />
  </catch>
</vxml>
```

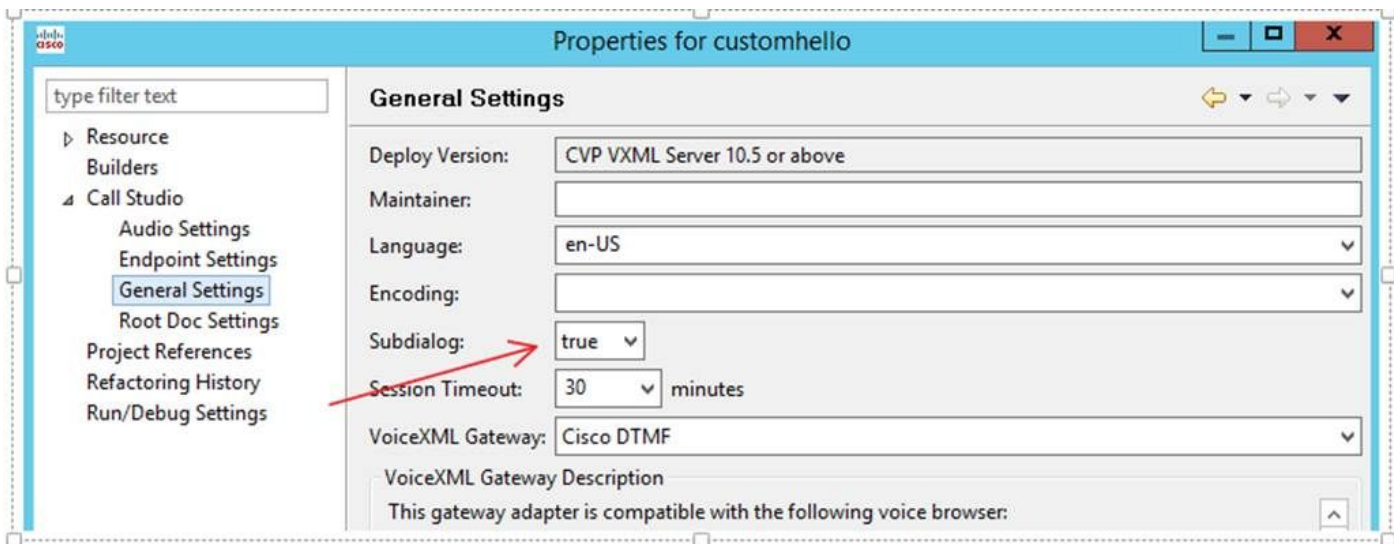
Not return here - state is exit.

```
<form>
  <block>
    <exit />
  </block>
</form>
</vxml>
```

## Solution

In order to return to the main dialog, application needs to be configured with **Subdialog = true**.

- Open application in CallStudio, right click and select properties. Modify your application to set the subdialog to **'true'** and redeploy the application.



- You can also verify whether subdialog is set to true or false from **settings.xml** file. This file can be found under the path - **C:\Cisco\CVP\VXMLServer\applications\**

```
<?xml version="1.0" encoding="UTF-8"?>  
<!DOCTYPE application SYSTEM "../..../dtds/Settings_1-2.dtd">  
<application version="1.2" subdialog="false" serial="0000" key="3d3174b703bfd68641433515159f8">  
- <audio>
```