



Avaya Solution & Interoperability Test Lab

Application Notes for Daycom Viz-ibility with Avaya Communication Manager – Issue 1.0

Abstract

These Application Notes describe the configuration procedures required to allow Daycom Viz-ibility to collect call quality data from Avaya Communication Manager utilizing Avaya Call Detail Recording (CDR) and Real Time Control Protocol (RTCP).

The Viz-ibility collects, stores, and processes call records to provide usage analysis, latency, and packet drop. During the compliance test, the Viz-ibility was shown to successfully collect and process call detail recording data and call quality data for all call scenarios tested, including outbound trunk calls, inbound trunk calls, intra-switch calls, inter-switch calls, and automatic call distributor (ACD) calls.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describes a compliance-tested CDR and RTCP solution comprised of Avaya Communication Manager and Daycom Viz-ibility.

The Viz-ibility is a complete enterprise management platform that provides all the tools customers need to monitor company's security, systems health and availability, and more. During the compliance test, the following functionalities were tested:

- The Voice System Analyzer (VSA) – Provides administrators a single interface for analyzing and interrogating VoIP PBX call quality metrics (Packet Loss and Packet Delay).
- The Call Path Explorer for Avaya Networks – Provides a call path utilizing RTCP Sender Report.
- Call Detail Recording (CDR) – Avaya Communication Manager generates and sends the call records out on the TCP/IP session while the Viz-ibility collects, stores, and processes the records at the other end. During the compliance test, Daycom provided a customized format (not included in these Application Notes), and used as the Primary Output Format.

Figure 1 provides the test configuration used for the compliance test. The configuration consists of two Avaya Servers running Avaya Communication Manager. The solution described herein is also extensible to other Avaya Servers and Media Gateways. An Avaya S8300 Server with an Avaya G700 Media Gateway was included during the test, to provide an IP trunk between two Avaya Communication Manager systems.

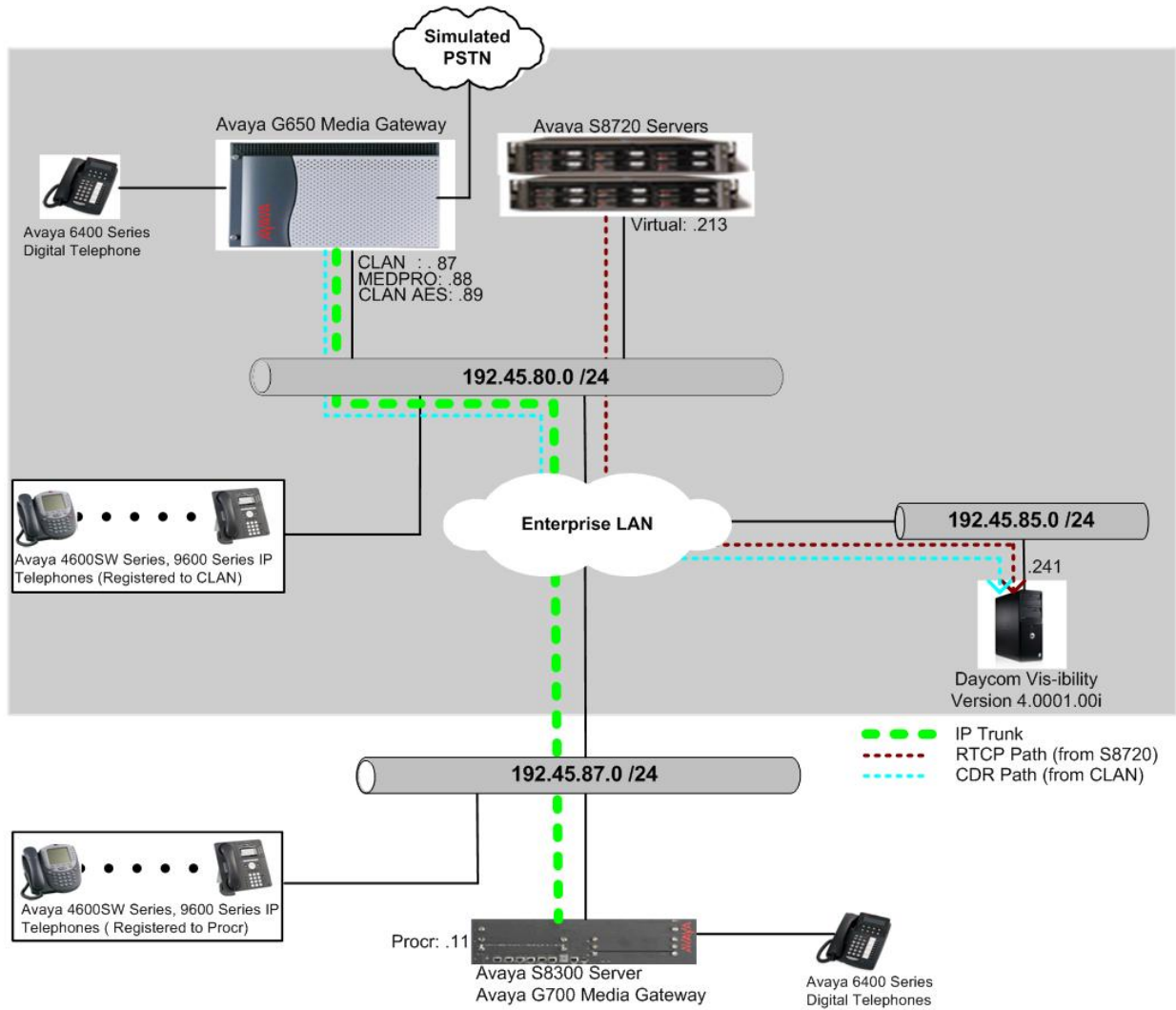


Figure 1: Test configuration collecting CDR data from multiple servers

2. Equipment and Software Validated

The following equipment and software/firmware were used for the test configuration provided.

Equipment		Software/Firmware
Avaya S8720 Servers		Avaya Communication Manager 5.0 (R015x.00.0.825.4)
Avaya G650 Media Gateway		
	TN2312BP IP Server Interface	HW11 FW030
	TN799DP CLAN Interface	HW01 FW017
	TN2302AP IP Media Processor	HW20 FW108
Avaya S8300 Server with Avaya G700 Media Gateway		Avaya Communication Manager 5.0 (R015x.00.0.825.4)
Avaya 4600 Series IP Telephones		
	4620 (H.323)	2.8.3
	4625 (H.323)	2.8.3
Avaya 9600 Series IP Telephones		
	9630 (H.323)	1.5
	9650 (H.323)	1.5
Avaya 6400D Series Digital Telephones		-
Avaya C363T-PWR Converged Stackable Switch		4.5.14
Extreme Networks Summit 48		4.1.21
Daycom Viz-ibility OS : Linux 2.6		4.0001.00i

3. Configure Avaya Communication Manager

This section describes the procedure for configuring CDR and RTCP Monitor Server in Avaya Communication Manager. These steps are performed through the System Access Terminal (SAT) for the Avaya S8720 Server. All steps are the same for the other Avaya Servers unless otherwise noted. Avaya Communication Manager will be configured to generate CDR records using TCP/IP link to the IP address of the PC running Viz-ibility. For the Avaya S8720 Server, the TCP/IP link originates at the IP address of the CLAN board. For the Avaya S8300 Server, the TCP/IP link originates at the IP address of the local media server (with node-name – “procr”).

3.1. Configure Avaya Call Detail Recording

Use the **change node-names ip** command to create a new node name, for example, **Daycom**. This node name is associated with the IP Address of the PC running the Viz-ibility application. Also, take note of the node name – **CLAN**. It will be used in the next step.

change node-names ip		Page 1 of 2
IP NODE NAMES		
Name	IP Address	
Daycom	192.45.85.241	
CLAN	192.45.80.87	
S8300	192.45.81.11	
MEDPRO	192.45.80.88	
RDTT	192.45.80.254	
S8300G700	192.45.87.11	
VAL	192.45.80.85	
default	0.0.0.0	

Use the **change ip-services** command to define the CDR link to use the TCP/IP link. To define a primary CDR link, the following information should be provided:

- Service Type: **CDR1** [If needed, a secondary link can be defined by setting Service Type to CDR2.]
- Local Node: **CLAN** [For the Avaya S8720 Server, the Local Node is set to the node name of the CLAN board. If the Avaya S8300 Server was utilized, set the Local Node to **procr**.]
- Local Port: **0** [The Local Port is fixed to 0 because Avaya Communication Manager initiates the CDR link.]
- Remote Node: **Daycom** [The Remote Node is set to the node name previously defined.]
- Remote Port: **9000** [The Remote Port may be set to a value between 5000 and 64500 inclusive, and must match the port configured in Viz-ibility.]

change ip-services					Page	1 of	4
IP SERVICES							
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port		
CDR1		CLAN	0	Daycom	9000		

On **Page 3** of the ip-services form, disable the Reliable Session Protocol (RSP) for the CDR link by setting the Reliable Protocol field to **n**.

change ip-services						Page 3 of 4
SESSION LAYER TIMERS						
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer	
CDR1	n	30	3	3	60	

Enter the **change system-parameters cdr** command from the SAT to set the parameters for the type of calls to track and the format of the CDR data. The example below shows the settings used during the compliance test. Provide the following information:

- CDR Date Format: **month/day**
- Primary Output Format: **customized**
- Primary Output Endpoint: **CDR1**

The remaining parameters define the type of calls that will be recorded and what data will be included in the record. See reference [2] for a full explanation of each field. The test configuration used some of the more common fields described below.

- Use Legacy CDR Formats?: **n** [Allows CDR formats to use 5.x CDR formats. If the field is set to **y**, then CDR formats utilize the 3.x CDR formats.]
- Intra-switch CDR: **y** [Allows call records for internal calls involving specific stations. Those stations must be specified in the INTRA-SWITCH CDR form.]
- Record Outgoing Calls Only?: **n** [Allows incoming trunk calls to appear in the CDR records along with the outgoing trunk calls.]
- Outg Trk Call Splitting?: **y** [Allows a separate call record for any portion of an outgoing call that is transferred or conferenced.]
- Inc Trk Call Splitting?: **y** [Allows a separate call record for any portion of an incoming call that is transferred or conferenced.]

Note: During the compliance test, Daycom provided a customized format data fields. The format data fields are not included in these Application Notes.

change system-parameters cdr		Page 1 of 2
CDR SYSTEM PARAMETERS		
Node Number (Local PBX ID): 1	CDR Date Format: month/day	
Primary Output Format: customized	Primary Output Endpoint: CDR1	
Secondary Output Format:		
Use ISDN Layouts? n	Enable CDR Storage on Disk? n	
Use Enhanced Formats? n	Condition Code 'T' For Redirected Calls? n	
Use Legacy CDR Formats? n	Remove # From Called Number? n	
Modified Circuit ID Display? n	Intra-switch CDR? y	
Record Outgoing Calls Only? n	Outg Trk Call Splitting? y	
Suppress CDR for Ineffective Call Attempts? n	Outg Attd Call Record? n	
Disconnect Information in Place of FRL? y	Interworking Feat-flag? n	
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n	Calls to Hunt Group - Record: group-ext	
Record Called Vector Directory Number Instead of Group or Member? n		
Record Agent ID on Incoming? y	Record Agent ID on Outgoing? n	
Inc Trk Call Splitting? y	Inc Attd Call Record? n	
Record Non-Call-Assoc TSC? n	Call Record Handling Option: warning	
Record Call-Assoc TSC? n	Digits to Record for Outgoing Calls: dialed	
Privacy - Digits to Hide: 0	CDR Account Code Length: 6	

change intra-switch-cdr					Page	1 of	2
INTRA-SWITCH CDR							
Assigned Members:		4	of 5000	administered			
1: 22001	19:	37:	55:	73:	91:		
2: 22002	20:	38:	56:	74:	92:		
3: 22003	21:	39:	57:	75:	93:		
4: 22007	22:	40:	58:	76:	94:		
5:	23:	41:	59:	77:	95:		
6:	24:	42:	60:	78:	96:		
7:	25:	43:	61:	79:	97:		

Note: An assumption is made that a trunk group, a signaling group, and a route pattern are configured correctly. Configuring these is outside the scope of these Application Notes.

change trunk-group 10

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TRUNK GROUP

Group Number: 10

Group Type: isdn

CDR Reports: y

Group Name: G700-IP trunk

COR: 1

TN: 1

TAC: 111

Direction: two-way

Outgoing Display? y

Carrier Medium: H.323

Dial Access? y

Busy Threshold: 255

Night Service:

Queue Length: 0

Service Type: tie

Auth Code? n

Member Assignment Method: auto

Signaling Group: 10

Number of Members: 4

This section provides the procedures for configuring RTCP Monitor Server. Since the Viz-ibility utilizes RTCP packet to calculate and report the quality of the call stream, a RTCP Monitor Server needs to be created in Avaya Communication Manager. The following screen describes the setting of the RTCP Monitor Server. Enter the **change system-parameters ip-options** command to configure the RTCP Monitor Server. Provide the following information:

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Daycom-ACM

- **Default RTCP Report Period(secs) – 5** [The report period indicates Avaya Communication Manager forwards RTCP packet to the RTCP Monitor Server, which is the Viz-ibility server. The default value for the Default RTCP Report Period(secs) field is 5]

Default values may be used in the remaining fields.

change system-parameters ip-options	Page	1 of	3
IP-OPTIONS SYSTEM PARAMETERS			
IP MEDIA PACKET PERFORMANCE THRESHOLDS			
Roundtrip Propagation Delay (ms)	High: 800	Low: 400	
Packet Loss (%)	High: 40	Low: 15	
Ping Test Interval (sec):	20		
Number of Pings Per Measurement Interval:	10		
RTCP MONITOR SERVER			
Default Server IP Address:	192.45 .85 .241		
Default Server Port:	5005		
Default RTCP Report Period(secs):	5		
AUTOMATIC TRACE ROUTE ON			
Link Failure?	y		
H.248 MEDIA GATEWAY		H.323 IP ENDPOINT	
Link Loss Delay Timer (min):	5	Link Loss Delay Timer (min):	5
		Primary Search Time (sec):	75
		Periodic Registration Timer (min):	20

4. Configure Daycom Viz-ibility

This section describes the configuration of Daycom Viz-ibility. For configuration procedures, please refer to [3] and [4].

5. Interoperability Compliance Testing

The compliance test included feature, serviceability, and performance (only for CDR). The feature testing evaluated the ability of the Viz-ibility to collect and process CDR records for various types of calls, and to collect call quality data from various call scenarios. The serviceability testing introduced failure scenarios to see if Viz-ibility can resume CDR and call quality data collection after failure recovery.

5.1. General Test Approach

The general test approach was to manually place intra-switch and inter-switch calls, inbound trunk and outbound trunk calls to and from telephones attached to the Avaya Servers, and verify that the Viz-ibility collects the CDR records and properly classifies and reports the attributes of the call. For serviceability testing, physical and logical links were disabled/re-enabled, media servers were reset and the Viz-ibility was restarted.

5.2. Test Results

All executed test cases passed. The Viz-ibility successfully collected the CDR records and call quality data from Avaya Communication Manager via a TCP/IP connection for all types of calls generated including intra-switch calls, inbound/outbound PSTN trunk calls, inbound/outbound private IP trunk calls, transferred calls, and conference calls. For serviceability testing, Viz-ibility was able to resume collecting CDR records after failure recovery including buffered CDR records for calls that were placed during the outages.

6. Verification Steps

The following steps may be used to verify the configuration:

- On the SAT of each Avaya Server, enter the **status cdr-link** command and verify that the CDR link state is up.
- Place a call and verify that Viz-ibility receives the CDR record for the call. Compare the values of data fields in the CDR record with the expected values and verify that the values match.
- Place internal, inbound trunk, and outbound trunk calls to and from various telephones, generate an appropriate report in Viz-ibility, and verify the report's accuracy.
- Using a network emulator, call latency and packet drop were injected in the network, and results from the network emulator, Avaya IP telephones, and Viz-ibility were compared.

7. Support

For technical support on Viz-ibility, contact Daycom at 1-479-271-1770.

8. Conclusion

These Application Notes describe the procedures for configuring Daycom Viz-ibility to collect call detail records and call quality data from Avaya Communication Manager. Viz-ibility successfully passed all compliance testing.

9. Additional References

The following Avaya product documentation can be found at <http://support.avaya.com>.

[1] *Feature Description and Implementation for Avaya Communication Manager*, Issue 6, January 2008, Document Number 555-245-205

[2] *Administrator Guide for Avaya Communication Manager*, Issue 4, January 2008, Document Number 03-300509

The following Viz-ibility product documentation is available from Daycom.

[3] Arbitrator™ Voice Quality Management Solution Documentation

[4] *Avaya Call Path Explorer & Configuration Guide*, 2008

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