



## **Avaya Solution & Interoperability Test Lab**

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# **Application Notes for T-Metrics Consolidated Operator Answering System and Avaya Aura™ Communication Manager – Issue 1.0**

### **Abstract**

These Application Notes describe the steps to configure for interoperability compliance testing the T-Metrics Consolidated Operator Answering System (COAS) in an environment which consists of Avaya Aura™ Communication Manager and Avaya digital telephones.

T-Metrics COAS enables multi-site organizations that feature various telecommunication switching platforms within their networks to consolidate operator resources. The system removes the barriers between dissimilar telecommunication platforms and creates efficiencies through organization-wide Operator workload sharing and the elimination of redundancy created by multiple operator centers. As a result, the COAS produces significant, measurable savings while also maximizing current switching hardware and software investments.

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 describe the steps to configure for interoperability compliance testing the T-Metrics Consolidated Operator Answering System (COAS) with Avaya Aura™ Communication Manager and Avaya digital telephones.

T-Metrics COAS enables multi-site organizations that feature various telecommunication switching platforms within their networks to consolidate operator resources. The system removes the barriers between dissimilar telecommunication platforms and creates efficiencies through organization-wide Operator workload sharing and the elimination of redundancy created by multiple operator centers. As a result, the COAS produces significant, measurable savings while also maximizing current switching hardware and software investments.

The COAS expands the scope of T-Metrics feature-rich PC Consoles by unifying PC Console Operators across the spectrum of a customer's various telecommunication platforms. The COAS solution coordinates call routing to PC Console Operators in a manner that meets the needs of the entire organization as a whole, while also offering individual location flexibility through SIP Operator PC Console endpoints.

## 1.1. Interoperability Compliance Testing

The interoperability compliance test included features and serviceability. The focus of the compliance testing was primarily on verifying the interoperability between Communication Manager and T-Metrics COAS, especially TM-2000. Basic calls were placed, including inbound calls, outbound calls, transferred calls, conference calls, and simultaneous multiple calls.

## 1.2. Support

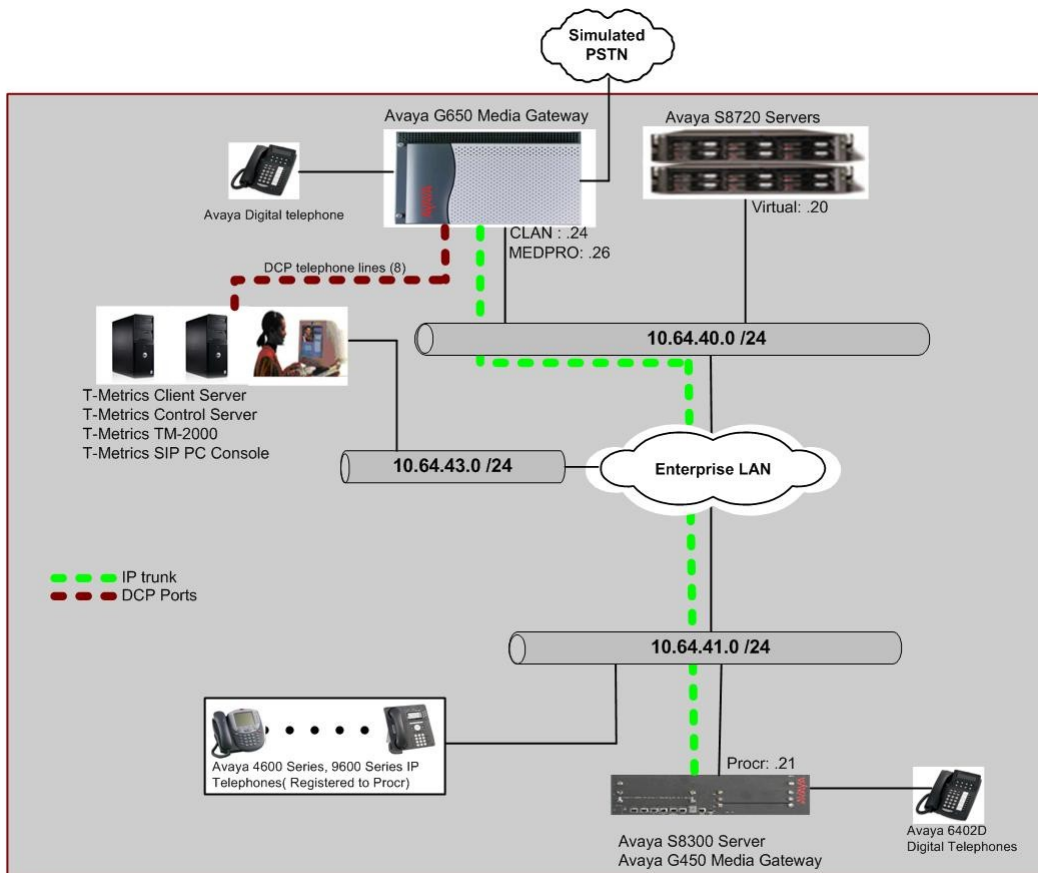
Technical support for the T-Metrics Consolidated Operator Answering System (COAS) solution can be obtained by contacting T-Metrics:

- URL – [support@tmetrics.com](mailto:support@tmetrics.com) (or <http://www.tmetrics.com/Subscribers/productsupport/>)
- Phone – (704) 525- 5551 then, Press “2”

# 2. Reference Configuration

**Figure 1** illustrates the configuration used in these Application Notes. The sample configuration shows the COAS with Avaya S8720 Servers and a G650 Media Gateway. T-Metrics COAS was located in a different VLAN. T-Metrics COAS connects to Communication Manager using Digital Communication Protocol (DCP) ports and emulates Avaya 7434ND Digital Telephones. An Avaya S8300 Server with an Avaya G450 Media Gateway was included in the test to provide an inter-switch scenario.

The specific configuration above was used for the compliance test. Note that this solution will be compatible with other Avaya Server and Media Gateway platforms running similar versions of Communication Manager.



**Figure 1: Test Configuration for the T-Metrics Consolidate Operator Answering System (COAS) Solution**

### 3. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Avaya IP Telephony Solution Components	
Component	Release
Avaya S8720 Media Servers	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya G650 Media Gateway	
TN2312BP IP Server Interface	HW12 FW22
TN799DP C-LAN Interface	HW1 FW16
TN2302AP IP Media Processor	HW11 FW107
Avaya S8300 Server with Avaya G450 Media Gateway	Avaya Aura™ Communication Manager 5.2.1 (R015x.02.1.016.4)
Avaya 9600 IP Series Telephone (H.323)	Avaya one-X Deskphone Edition (H.323)
9620	3.1
9630	3.1
Avaya 9620 Series IP Telephone (SIP)	Avaya one-X Deskphone Edition (SIP)
9620	2.5
9630	2.5
T-Metrics COAS Solution Components	
Component	Release
T-Metrics COAS on Windows 2003 R3 Sp2	5.0.42

**Table 1: Equipment and Software Tested**

### 4. Configure Communication Manager

This section describes the steps for configuring Communication Manager for the T-Metrics COAS solution. During the compliance test, eight DCP ports were connected to T-Metrics COAS. Of these eight, four ports were connected to the TM Client Server via a Dialog board. Of these four ports, two were utilized as TM caller ports and the other two were utilized as TM headset ports. The other four ports were connected to TM-2000, and eventually to PC consoles for operators.

The Communication Manager configuration was performed using the System Access Terminal (SAT).

#### 4.1. Configure DCP 7434ND station

Since T-Metrics COAS solution utilized the Avaya DCP 7434ND phone type, this feature had to be enabled. Enter the **change system-parameters features** command. On **Page 6**, set the 7434ND field to y.

change system-parameters features	Page 6 of 19
FEATURE-RELATED SYSTEM PARAMETERS	

```

Public Network Trunks on Conference Call: 5           Auto Start? n
Conference Parties with Public Network Trunks: 6       Auto Hold? n
Conference Parties without Public Network Trunks: 6    Attendant Tone? y
Night Service Disconnect Timer (seconds): 180         Bridging Tone? n
Short Interdigit Timer (seconds): 3                  Conference Tone? n
Unanswered DID Call Timer (seconds): 10              Intrusion Tone? n
Line Intercept Tone Timer (seconds): 30              Mode Code Interface? n
Long Hold Recall Timer (seconds): 0
Reset Shift Timer (seconds): 0
Station Call Transfer Recall Timer (seconds): 0       Recall from VDN? n

DID Busy Treatment: tone
Allow AAR/ARS Access from DID/DIOD? n
Allow ANI Restriction on AAR/ARS? n
Use Trunk COR for Outgoing Trunk Disconnect/Alert? n
7405ND Numeric Terminal Display? n                   7434ND? y
DISTINCTIVE AUDIBLE ALERTING
Internal: 1 External: 2 Priority: 3
Attendant Originated Calls: external

```

## 4.2. Configure Codecs

Use the **change ip-codec-set 1** command to define the codec(s) contained in this set which is used for calls to the T-Metrics COAS solution. The example below uses only G.711MU.

```

change ip-codec-set 1                               Page 1 of 2

IP Codec Set

Codec Set: 1

Audio      Silence      Frames      Packet
Codec      Suppression   Per Pkt    Size(ms)
1: G.711MU      n           2          20
2:

```

## 4.3. Configure COAS DCP Stations

Enter the **add station r** command, where **r** is an extension, provisioned under the dial plan. The telephone type utilized during the compliance test was Avaya DCP 7434ND. On **Page 1** of the STATION form, enter Type as **7434ND**. Also, enter Port, and Name. On the same page, enable the Display Module field, and it will create the Display Language field. Set the Display Language field to **english**.

```

add station 32000                                   Page 1 of 6

STATION

Extension: 32000                                     Lock Messages? n      BCC: 0
Type: 7434ND                                         Security Code:         TN: 1
Port: 01A0501                                       Coverage Path 1:      COR: 1
Name: COAS-1                                         Coverage Path 2:      COS: 1
Hunt-to Station:

STATION OPTIONS

Loss Group: 2                                         Time of Day Lock Table:
Data Module? n                                       Personalized Ringing Pattern: 1
Message Lamp Ext: 32000

```

Display Module? y	Coverage Module? n
Display Language: english	
Survivable COR: internal	Media Complex Ext:
Survivable Trunk Dest? y	IP SoftPhone? n

On **Page 4**, administer both a **lwc-store** and a **lwc-cancel** buttons on the last two buttons (Buttons # 9 & 10). Leave Word Calling Cancel (lwc-cancel) cancels the last leave word calling message originated by the user. Leave Word Calling Store (lwc-store) leaves a message for the user associated with the last number dialed to return the call to the originator.

add station 32000		Page 4 of 6
STATION		
SITE DATA		
Room:		Headset? n
Jack:		Speaker? n
Cable:		Mounting: d
Floor:		Cord Length: 0
Building:		Set Color:
ABBREVIATED DIALING		
List1:	List2:	List3:
BUTTON ASSIGNMENTS		
1: call-appr	6:	
2: call-appr	7:	
3:	8:	
4:	9: lwc-store	
5:	10: lwc-cancel	

On **Page 6**, administer a Normal button to place the station's display into the normal call identification mode.

add station 32000		Page 6 of 6
STATION		
DISPLAY BUTTON ASSIGNMENTS		
1: normal		

Repeat this step as necessary to configure additional DCP stations for T-Metrics COAS.

## 4.4. Configure Hunt Group

Enter the **add hunt-group n** command, where **n** is an unused hunt group number. On **Page 1**, assign a descriptive Group Name and Group Extension valid in the provisioned dial plan.

Use the default value for the remaining fields.

add hunt-group 101		Page 1 of 60
HUNT GROUP		

Group Number: 101	ACD? n
Group Name: COAS Group	Queue? n
Group Extension: 32100	Vector? n
Group Type: ucd-mia	Coverage Path:
TN: 1	Night Service Destination:
COR: 1	MM Early Answer? n
Security Code:	Local Agent Preference? n
ISDN/SIP Caller Display:	

On **Page 3**, enter the stations that are configured for TM caller ports.

add hunt-group 101		Page 3 of 60
HUNT GROUP		
Group Number: 101	Group Extension: 32100	Group Type: ucd-mia
Member Range Allowed: 1 - 1500	Administered Members (min/max): 1 /2	
Total Administered Members: 2		
GROUP MEMBER ASSIGNMENTS		
Ext	Name(19 characters)	Ext
1: 32000	COAS-1	14:
2: 32001	COAS-2	15:
3:		16:
4:		17:

## 5. T-Metrics Configuration

There is no special configuration implemented on the T-Metrics COAS solution during the compliance test. The interface between Communication Manager and T-Metrics COAS solution were DCP port connection from the circuit pack, TN2224B to TM-2000 and TM Client Server.

## 6. General Test Approach and Test Results

This section describes the interoperability compliance testing used to verify interoperability between the T-Metrics COAS and Communication Manager solution.

The compliance test included the following:

- Inbound calls to PC console.
- Outbound calls from PC console.
- Inbound blind transfer
- Inbound consult transfer
- Conference call up to 6 party
- Multiple Inbound calls to a PC console
- G.711Mu codec

## 7. Verification Steps

This section provides verification steps that may be performed in the field to verify that T-Metrics COAS can place and/or receive outbound PSTN, inbound PSTN and inter-PBX calls.

- Verify that DCP endpoints were in service using the **status station** command.

- Verify a PC console receives inbound calls that came in through a hunt group.
- Verify a PC console can place outbound calls including intra-switch, inter-switch, and PSTN.

## 8. Conclusion

These Application Notes describe the configuration necessary to connect Communication Manager to T-Metrics COAS. The T-Metrics COAS consists of four sub-components: a Client Server, a Control Server, a TM-2000, and SIP PC consoles. The TM-2000 is a hardware network device which provides Voice over Internet Protocol (VoIP) through Session Initiated Protocol (SIP) per RFC 3261. It uses Real-time Transport Protocol/Real-Time Control Protocol (RTP/RTCP) for delivery of voice over LAN or WAN. During the compliance test, all test cases passed.

## 9. References

This section references the documentation relevant to these Application Notes. Additional Avaya product documentation is available at <http://support.avaya.com>.

- [1] *Administering Avaya Aura™ Communication Manager*, May 2009, Document Number 03-300509.
- [2] *Avaya Aura™ Communication Manager Feature Description and Implementation*, May 2009, Document Number 555-245-205.

Product information for T-Metrics products may be found at <http://www.tmetrics.com>. The following T-Metrics COAS document was provided by T-Metrics.

- [3] *T-Metrics Consolidated Operator Answering System (COAS) TM-1000 Overview*



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