



Avaya Solution & Interoperability Test Lab

Application Notes for MTS TABS.IT R7.025 with Avaya Communication Manager 2.1 – Issue 1.0

Abstract

These Application Notes describe the configuration steps required in order for MTS TABS.IT to successfully interoperate with Avaya Communication Manager 2.1.

TABS.IT is call management solution that collects and analyses Call Detail Records from a Communication Manager system.

An Avaya S8300 Media Server with an Avaya G700 Media Gateway running Communication Manager 2.1 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load.

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

1. Introduction

These Application Notes describe the compliance-tested configuration using an MTS TABS.IT server and Avaya Communication Manager. They address the Call Detail Record (CDR) output from Communication Manager.

TABS.IT is a call management system that collects and analyses CDR data from a Communication Manager system.

Although TABS.IT supports both RS232 and TCP/IP connections, only the IP configuration was tested. This is because the RS232 link is typically only used with legacy PBXs. Testing was performed using both standard TCP sockets and Avaya's Reliable Session Protocol (RSP).

The overall configuration consists of the Avaya S8300 Media Server with Avaya G700 Media Gateway and a single Ethernet connection to the TABS.IT Server. **Figure 1** below shows a diagram of the tested solution.

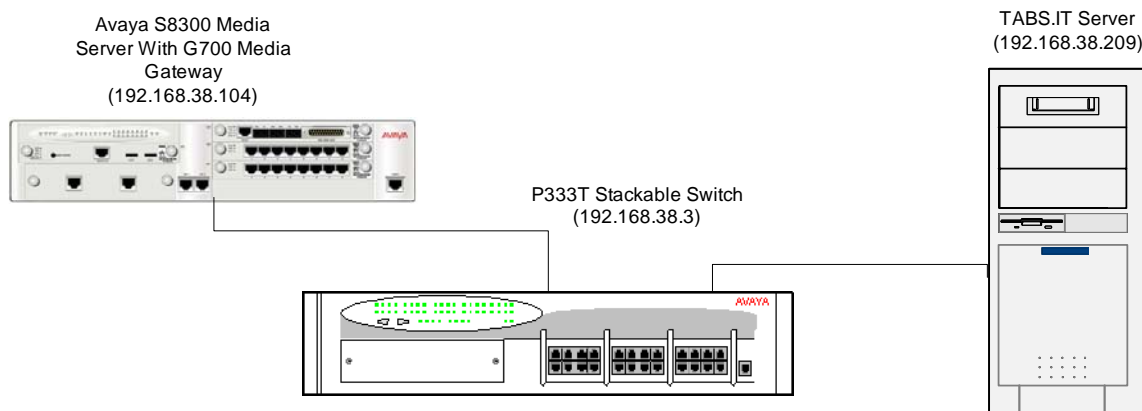


Figure 1: Tested Avaya System with TABS.IT Server

2. Equipment and Software Validated

Equipment	Software
Avaya S8300 Media Server with G700 Media Gateway	CM 2.1 load 409.0
Avaya P333T Stackable Switch	V4.0.17
MTS TABS.IT Server	R7.025

3. Configure Avaya Communication Manager

The CDR configuration of Avaya Communication Manager consists of two main screens – the CDR options and the transport options. Please refer to the Administrators Guide for Communication Manager for further details – [1] Avaya Document number 555-233-506.

3.1. Configure System Parameters CDR

Shown below is the administration screen allowing the exact format of the CDR data stream to be defined. Communication Manager allows a custom format to be defined allowing the type and order of fields to be controlled. TABS.IT can be configured for Avaya Communication Manager, and so the generic “printer” format was used. The majority of the remaining values are defaults other than the endpoint being configured as “CDR1” as shown in the screen shot below:

Display System-Parameters CDR

Voice System name: Hardy - CDR SYSTEM PARAMETERS		
Node Number (Local PBX ID): 6	CDR Date Format: day/month	
Primary Output Format: printer	Primary Output Endpoint: CDR1	
Secondary Output Format:		
Use ISDN Layouts? n		
Use Enhanced Formats? n	Condition Code 'T' For Redirected Calls? y	
Modified Circuit ID Display? n	Remove # From Called Number? y	
Record Outgoing Calls Only? n	Intra-switch CDR? y	
Suppress CDR for Ineffective Call Attempts? n	Outg Trk Call Splitting? y	
Disconnect Information in Place of FRL? n	Outg Attd Call Record? y	
	Interworking Feat-flag? n	
Force Entry of Acct Code for Calls Marked on Toll Analysis Form? n		
	Calls to Hunt Group - Record: member-ext	
Record Called Vector Directory Number Instead of Group or Member? n		
Record Agent ID on Incoming? y	Record Agent ID on Outgoing? y	
Inc Trk Call Splitting? y	Inc Attd Call Record? y	
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: 15	

3.2. Configure Trunks

Communication Manager supports the capability of defining which trunks generate CDR records and which ones do not. There is also the option of generating a CDR record for both the alerting and the active phase of a call. The options for CDR generation are thus N(o), Y(es), or R(ing). A screen shot is shown below:

Display Trunk 6

Voice System name: Hardy - TRUNK GROUP		
Group Number: 6	Group Type: isdn	CDR Reports: r
Group Name: QSIG to Grove	COR: 1	TN: 1 TAC: 706
Direction: two-way	Outgoing Display? n	Carrier Medium: PRI/BRI
Dial Access? y	Busy Threshold: 255	Night Service:
Queue Length: 0		
Service Type: tie	Auth Code? n	TestCall ITC: rest
	Far End Test Line No:	
TestCall BCC: 4		
TRUNK PARAMETERS		
Codeset to Send Display: 6	Codeset to Send National IEs: 6	
Max Message Size to Send: 260	Charge Advice: none	
Supplementary Service Protocol: b	Digit Handling (in/out): enbloc/enbloc	
Trunk Hunt: cyclical		
	Digital Loss Group: 13	
Incoming Calling Number - Delete:	Insert:	Format:
Bit Rate: 1200	Synchronization: async	Duplex: full
Disconnect Supervision - In? y Out? n		
Answer Supervision Timeout: 0		

3.3. Configure IP Services

Two transport options were used for the testing – standard IP sockets and RSP. These are configured using the same command “Change IP-Services”, but with slightly different parameters. The following two screen shots show the configurations used.

Display IP-Services (for standard IP Sockets)

Voice System name: Hardy - IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
DAPI	y	procr	0	any	0
CDR1		procr	0	MTS	5060
SESSION LAYER TIMERS					
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer
CDR1	n	30	3	3	60

Display IP-Services (for Reliable Session Protocol)

Voice System name: Hardy - IP SERVICES					
Service Type	Enabled	Local Node	Local Port	Remote Node	Remote Port
DAPI	y	procr	0	any	0
CDR1		procr	0	MTS	5060
SESSION LAYER TIMERS					
Service Type	Reliable Protocol	Packet Resp Timer	Session Connect Message Cntr	SPDU Cntr	Connectivity Timer
CDR1	y	30	3	3	60

Please note that the only difference is the setting of the reliable protocol field in the Session Layer Timers Page. The remaining session layer timers were left at their default settings.

Display Node-Names IP

Voice System name: Hardy - IP NODE NAMES			
Name	IP Address		
CLAN	192.168.38	.104	
Dove	192.168.38	.28	
Dundas	192.168.38	.26	
Elgar	192.168.38	.34	
Gorse	192.168.38	.52	
IP_Trunk	192.168.38	.214	
KIM_CLAN	192.168.38	.67	
MultiVoIP	192.168.38	.112	
Simon	192.168.38	.224	
MTS	192.168.38	.209	
VoIP	192.168.38	.106	
default	0	.0 .0	.0

4. Configure the Avaya P333T Stackable Switch

No special configuration of this device is necessary in this configuration.

5. Configure the TABS.IT Server

The majority of the configuration of the TABS.IT Server consists of building flat ASCII files. There are a couple of tools for on-site generation of these files, but in practice, they are normally generated by hand.

For the testing, there was a generic definition of the CDR format, and configuration for the Avaya data collection service.

The following lists the contents of the CDR format definition file “AvayaPrinter.pdf”:

```
[ProtocolDefinition]
Name=Avaya Printer
StripExpr=0-9, 0-0
BCDIgnoreChar=
Checksum=0
DurationFactor=0
TransferType=
CostDecimalSymbol=.
UseSpace4FieldDelimiter=Yes
IgnoreAfterLocked=No
CHARSET0=
CHARSET1=
CHARSET2=
CHARSET3=
CHARSET4=

[Setup]
IncomingCalls=Process Incoming Calls:,Select processing of INCOMING calls,help, L,1,Yes,0,0,0,*

[ProtocolComSetup]
Ack=
Enq=
Nak=
XOff=
XOn=

[PacketDefinitions]
Avaya.T2T=
Avaya.Outgoing=
Avaya.Incoming=
Avaya.RT=
Avaya.H=
Avaya.Internal=
Avaya.IncConf=
Avaya.OutConf=

[Avaya.Outgoing]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=OUTGOING, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.55|0.0

[Avaya.Outgoing.Fields]
EXTENSION=STRING, at 36, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
```

DURATION=STRING, at 5, 2, 6
DIALED_NUMBER=STRING, at 20, 15, 0
TRUNK=STRING, at 16, 3, 0
GENERAL1=STRING, at 77, 3, 0

[Avaya.Incoming]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=Incoming, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.57|0.0
Link=TRUNK, UPDATE
TimesToSearchLink=0
CheckLinkExpr=Yes
LinkExpr== DATA_STATUS 3
LinkImport= Ring_Time = Ring_Time
LinkDelete=Yes

[Avaya.Incoming.Fields]
EXTENSION=STRING, at 30, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
DURATION=STRING, at 5, 2, 6
;CALLER_ID=STRING, at 20, 15, 0
TRUNK=STRING, at 38, 3, 0
GENERAL1=STRING, at 73, 3, 0

[Avaya.RT]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=Incoming, DATA
DataStatus=DATA_EXPECTED
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.'G'|0.0

[Avaya.RT.Fields]
RING_TIME=STRING, at 5, 2, 6
EXTENSION=STRING, at 30, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
;CALLER_ID=STRING, at 20, 15, 0
TRUNK=STRING, at 38, 3, 0
GENERAL1=STRING, at 73, 3, 0

[Avaya.H]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=Incoming, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.'H'|0.0

```

[Avaya.H.Fields]
RING_TIME=STRING, at 5, 2, 6
EXTENSION=STRING, at 30, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
;CALLER_ID=STRING, at 20, 15, 0
TRUNK=STRING, at 38, 3, 0
NO_ANSWER=MATCH, at 10, 1, 'H'|0|0|0|0
GENERAL1=STRING, at 73, 3, 0

[Avaya.Internal]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=INTERNAL, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.48|0.0

[Avaya.Internal.Fields]
EXTENSION=STRING, at 36, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
DURATION=STRING, at 5, 2, 6
INT_EXTENSION2=STRING, at 30, 5, 0

[Avaya.IncConf]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=Incoming, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.'C'|0.0, 14, '='.32|0.0
Assign = Call_Type = 7

[Avaya.IncConf.Fields]
EXTENSION=STRING, at 30, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
DURATION=STRING, at 5, 2, 6
;CALLER_ID=STRING, at 20, 15, 0
TRUNK=STRING, at 38, 3, 0
GENERAL1=STRING, at 73, 3, 0

[Avaya.OutConf]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=OUTGOING, DATA
DataStatus=NORMAL
SaveCall=Yes
SendToCard=Yes
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.'C'|0.0, 14, '='.'9'|0.0
Assign = Call_Type = 6

```

```

[Avaya.OutConf.Fields]
EXTENSION=STRING, at 36, 5, 0
DATE=DATE, at 0, 0, 8
TIME=TIME, at 0, 2, 8
DURATION=STRING, at 5, 2, 6
DIALED_NUMBER=STRING, at 20, 15, 0
TRUNK=STRING, at 16, 3, 0
GENERAL1=STRING, at 77, 3, 0

[Avaya.T2T]
FieldDelimiter=32
MaximalLength=0
MinimalLength=10
PacketType=OUTGOING, DATA
DataStatus=NORMAL
SaveCall=No
SendToCard=No
ConcatTGroupAndTNumber=No
ConcatTGroupAndTNumberFormat=
StartDateTimeCalculation=No
EndMatch=10, 1
TypeMatchCond=10, '='.'9'|0.0, 31, '='.32|0.0, 32, '='.'7'|0.0, 37, '='.32|0.0, 38, '='.'7'|0.0

[Avaya.T2T.Fields]

```

The following lists the contents of the Avaya Data Collection file “DACO.ini”:

```

[General]
MriFileName=AvayaIP.mri

NoSetup= 0
NoReset= 0
Password=
PasswordOptions=0,0,0

```

Please note that the above file references “AvayaIP.mri” as the filter configuration file. Please note that the port number reference in this file “InPortIP” must match that configured earlier in Communication Manager (Section 3.3). This is listed below:

```

[General]
PortCount= 1
StartupWindowState=0, 2
MaximizeOnAlarms=0, 0
CheckRegForHalt= 0,,,
CheckRegForReset= 0,,,
SevereErrorHandler=0
[Port-A]
Description=From PBX
InMode= 3
InPort=1, 9600,N, 8, 1, 1024, 128, 0, 0,
InPortIP=0,0,,0,5060,,,,,
ButtonImages=1,2,3,0,0,
InFile=telnet*,D:\Program Files\DACO\data/, , 0, 0, 4024,telnet*,0,,0, 0, 0,,0,0, 15
InFileReadPtr= 4024
InFTP=1,10.10.1.16,tabs,ôáâó±²³´, 60
Ftam=0,,,,,,,,,0,0,,0
InBlockEnabled=-1
InBlockType=0
InBlockVarLen=0
InBlockBlockSize=0
InBlockStartCount=0
InBlockStartChar=0
InBlockEndCount=1
InBlockEndChar=10,

```



```

InBlockMTF=0
InBlockSerialIgnore=0, 0-0, 0-0, 0-0, 0-0, 0-0, 0-0,
FilterType=0
GenFilters=0, 0,
State=1
Priority=6
Counters=668,471,199,11,0,
DSState=0
DSsettings=6045,330,14265,3675,1,16384,0,126,DACO (From PBX) DataScope,$
RawOutMode=2,0
RawOutPort=1
RawOutFile=D:\avaya\raw.txt,00:00, 0,D:\work\done.###, 6, 38146.5079050926,, 60, 0, 0,0,1,0,0,
RawOutPrinterPort=
PreFilterOutMode=0,0
PreFilterOutPort=0
PreFilterOutFile=,00:00, 0,U:\ALAN\MRwork\0, 0, 0,, 60, 0, 0,0,0,0,0,
PreFilterOutPrinterPort=
PostFilterOutMode=2,0
PostFilterOutPort=0
PostFilterOutFile=D:\avaya\PORT-A.OUT,00:00, 2,D:\avaya\totabs.txt, 0, 38146.5506134259,, 60, 0,
0,1,0,0,0,
PostFilterOutPrinterPort=
PostFilterOutMode2=0,0
PostFilterOutPort2=0
PostFilterOutFile2=,00:00, 0,, 0, 0,, 60, 0, 0,0,0,0,0,
PostFilterOutPrinterPort2=
PostFilterOutMode3=0,0
PostFilterOutPort3=0
PostFilterOutFile3=,00:00, 0,, 0, 0,, 60, 0, 0,0,0,0,0,
PostFilterOutPrinterPort3=
RegSevereAlarms=
TrafficNoInternal=0,Traffic.Startup.NoInternal
[Tadiran]
MaskLen= 60
Mask=[13][13]^D ^T ^U ^1 ^2 --- L[13][10]
[FTP-SERVER]
Enabled=0
ActivationString=
FtpRoot=FtpRoot

```

The additional configuration for the RSP collection tool is listed below:

```

[General]
DefaultPortNumber=5060
AutoStart=Yes

[192.168.38.63]
PathToResFile=c:\avaya
RenameFileTimeFrequencyWhenReady=30
RenameFileFirstTimeFrequency=120

```

Screen Shots of both modes of data collection are shown below:

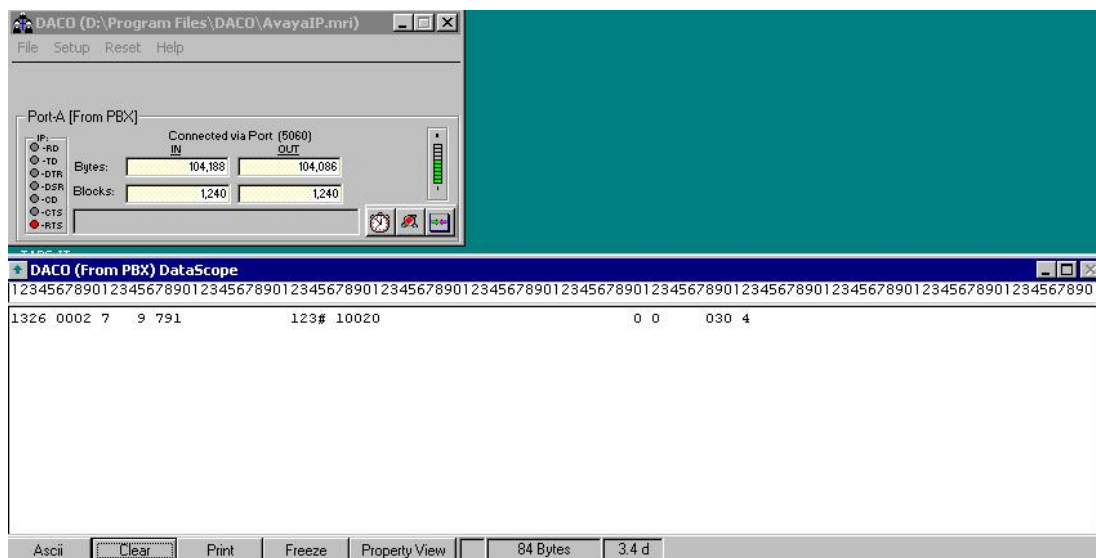


Figure 2: TABS.IT Server Collecting Data from Standard IP Sockets

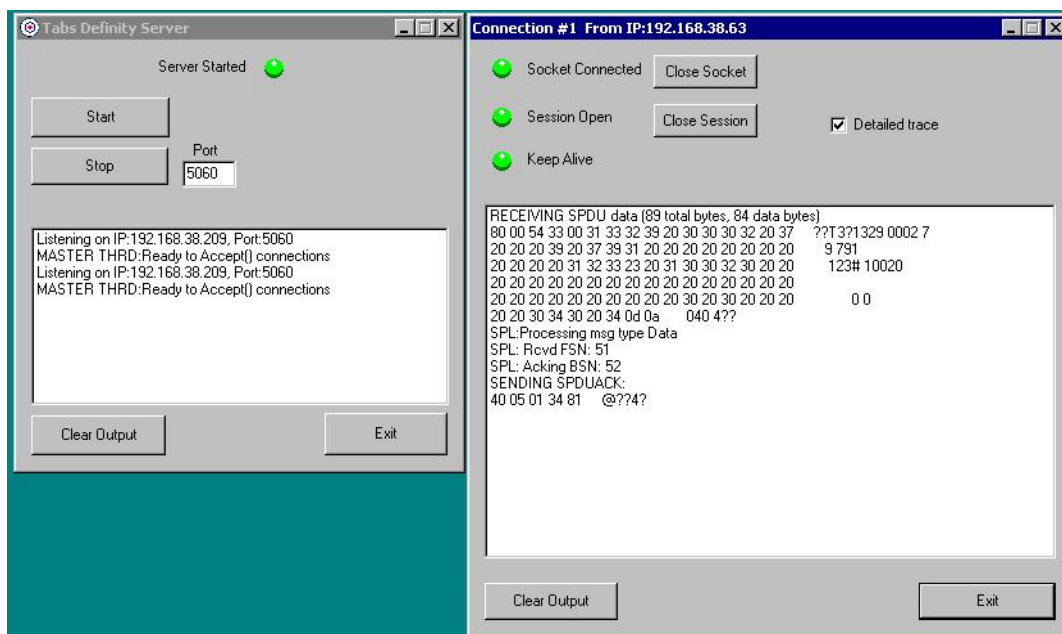


Figure 3: TABS.IT Server Collecting Data from RSP Sockets

6. Interoperability Compliance Testing

6.1. General Test Approach

Testing included validation of correct identification and recording of Outgoing, Incoming, Internal and Tandem calls. Light load testing and link integrity testing were also carried out.

6.2. Test Results

All tests passed.

7. Verification Steps

The following verification steps can be used to isolate problems in the field and to ensure that the CDR data is being correctly passed between the various components of the solution.

1. Verify that the status of the CDR link is “up” using the Communication Manager command “Status CDR”. If the primary link is “down” then there is a problem with the link between Communication Manager and the TABS.IT Server. This could be because of incorrect configuration of either product or a physical link issue. The standard ICMP “ping” command can be used on both systems to check physical connectivity and visibility of the other system.
2. In the case of the RSP connection, verify the TABS.IT RSP Server application has established a session with Communication Manager. If this is not the case, and the verification in step 1 has passed, then a RSP configuration parameter could be incorrect. Please note that RSP does take a short while to fully establish a session. A few minutes should be allowed between physical connection and the session being established.
3. Make a simple test call and ensure that the CDR data is visible in either the IP or the RSP data collector running on the TABS.IT server. Please note that the RSP algorithm tries to build packets consisting of multiple calls. As such, there may be a short delay before the data is visible. This does NOT indicate a fault condition.

8. Support

If technical support is required for the MTS TABS.IT server, contact their Technical Support Department:

Email: support@mtsint.com

Phone: +972 9 7621 300

9. Conclusion

These Application Notes describe the configuration steps required in order for MTS TABS.IT to successfully interoperate with Avaya Communication Manager 2.1. An Avaya S8300 Media Server with an Avaya G700 Media Gateway running Communication Manager 2.1 was used as the hosting PBX. Features and functionality were validated and performance testing was conducted in order to verify operation under light load. The configuration described in these Application Notes has been successfully compliance tested.

10. Additional References

[1] Administrators Guide for Communication Manager (Doc ID: 555-233-506) can be found at <http://support.avaya.com>.

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