Document #: 293

Last Update: 9/26/2017

Page: 1 of 20

Overview

This document outlines the configuration steps to integrate the Smart Assist by Mutare(SAM) using Session Initiation Protocol (SIP) with the Avaya Aura Communication Manager (CM) and Avaya Session Manager (ASM)

Site Configuration

Avaya Aura Communication Manager must be at release 5.1 or higher.

For this document, the configuration was as follows:

- Avaya Communication Manager 7.0 (CM) virtualized.
- Avaya Media Server (AMS) Virtualized
- Avaya Session Manager 7.0.1 (ASM) virtualized
- Avaya System Manager 7.0.1 (SMGR) virtualized

For the purposes of the configuration examples below, the following IP configuration was used:

- Mutare SAM- 192.168.1.79
- Avaya CM 192.168.1.206
- Avaya Session Manager- 192.168.1.208
- Avaya Session Manager Security Module- 192.168.1.215



Last Update: 9/26/2017

Page: 2 of 20

Configure Avaya Aura Communication Manager

Communication Manager License

Use the **display system-parameters customer-options** command to verify that the Communication Manager license has sufficient remaining capacity for SIP trunks by comparing the **Maximum Administered SIP Trunks** field value with the corresponding value in the **USED** column.

display system-parameters customer-options		Page	2 of	10
OPTIONAL FEATURES				
IP PORT CAPACITIES		USED		
Maximum Administered H.323 Trunks:	12	11		
Maximum Concurrently Registered IP Stations:	450	16		
Maximum Administered Remote Office Trunks:	450	0		
Maximum Concurrently Registered Remote Office Stations:	450	0		
Maximum Concurrently Registered IP eCons:	0	0		
Max Concur Registered Unauthenticated H.323 Stations:	0	0		
Maximum Video Capable H.323 Stations:	0	0		
Maximum Video Capable IP Softphones:	0	0		
Maximum Administered SIP Trunks:	450	37		
Maximum Administered Ad-hoc Video Conferencing Ports:	0	0		
Maximum Number of DS1 Boards with Echo Cancellation:	80	0		
Maximum TN2501 VAL Boards:	0	0		
Maximum Media Gateway VAL Sources:	50	1		
Maximum TN2602 Boards with 80 VoIP Channels:	0	0		
Maximum TN2602 Boards with 320 VoIP Channels:	0	0		
Maximum Number of Expanded Meet-me Conference Ports:	0	0		



Document #: 293 Last Update: 9/26/2017

Page: 3 of 20

IP Interfaces

Use the list ip-interface all command to identify which IP interfaces are located in which network region.

list ip-i	nterfa	ce all					
			IP INTERFACES				
ON	01			March		Net	
ом туре	SIOT	Code/SIX	Node Name/ IP-Address	Mask	Gateway Node	кgn	VLAN
y PROCR			192.168.1.206	/24	192.168.1.1	1	



Document #: 293

Last Update: 9/26/2017

Page: 4 of 20

IP Network Region

The configuration of the IP network regions is assumed to be already in place and is included here for clarity. Use **display ip-network-region** command to view these settings. Important fields:

- The **Authoritative Domain** field is configured to match the domain name configured on the Avaya SES. This name appears in the "From" header of SIP messages originating from this IP region.
- **IP-IP Direct Audio** (media shuffling) was enabled to allow audio traffic to be sent directly between IP endpoints without using media resources in the Avaya Media Gateway.
- The Codec Set field was set to the IP codec set to be used for calls within this IP network region.

```
display ip-network-region 1
                                                             Page 1 of 19
                              TP NETWORK REGION
 Region: 1
Location: 1
               Authoritative Domain: mutaresip.com
   Name: main
MEDIA PARAMETERS
                              Intra-region IP-IP Direct Audio: yes
     Codec Set: 1
                             Inter-region IP-IP Direct Audio: yes
  UDP Port Min: 2048
                                         IP Audio Hairpinning? n
  UDP Port Max: 3029
DIFFSERV/TOS PARAMETERS
                                       RTCP Reporting Enabled? y
Call Control PHB Value: 34 RTCP MONITOR SERVER PARAMETERS
                              Use Default Server Parameters? y
       Audio PHB Value: 46
       Video PHB Value: 26
802.1P/Q PARAMETERS
Call Control 802.1p Priority: 7
       Audio 802.1p Priority: 6
       Video 802.1p Priority: 5 AUDIO RESOURCE RESERVATION PARAMETERS
H.323 IP ENDPOINTS
                                                      RSVP Enabled? n
 H.323 Link Bounce Recovery? y
Idle Traffic Interval (sec): 20
  Keep-Alive Interval (sec): 5
           Keep-Alive Count: 5
```



Codecs

Use the **change ip-codec-set** to verify that the codec is configured to G.711MU.

```
display 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:
```



Last Update: 9/26/2017

Page: 6 of 20

Signaling Group

The signaling group and the associated SIP trunk group are used for routing calls to/from the CM to the ASM. Important fields:

- Group Type: sip.
- Transport Method: tcp (Transport Layer Security).
- Near-end Node Name: This will be procr
- Far-end Node Name: Node name of the ASM, in this case, ASM.
- Near-end Listen Port: This will default to 5060
- Far-end Listen Port: Change to 5060.
- Far-end Network Region: This should be set to the network region which contains the ASM.
- **DTMF over IP**: Set to the default value of **rtp-payload**, which allows the CM to send DTMF using RFC 2833.
- Direct IP-IP Audio Connections: Set to n to disable media shuffling on the trunk level

```
SIGNALING GROUP
Group Number: 1
                            Group Type: <mark>sip</mark>
 IMS Enabled? n
                     Transport Method: tcp
      O-SIP? n
    IP Video? n
                                                 Enforce SIPS URI for SRTP? y
 Peer Detection Enabled? n Peer Server: SM
Prepend '+' to Outgoing Calling/Alerting/Diverting/Connected Public Numbers? y
Remove '+' from Incoming Called/Calling/Alerting/Diverting/Connected Numbers? n
Alert Incoming SIP Crisis Calls? n
Near-end Node Name: procr
Near-end Listen Port: 5060
                                          Far-end Node Name: ASM
                                        Far-end Listen Port: 5060
                                     Far-end Network Region: 1
Far-end Domain:
                                            Bypass If IP Threshold Exceeded? n
Incoming Dialog Loopbacks: eliminate
                                                   RFC 3389 Comfort Noise? n
       DTMF over IP: rtp-payload
                                           Direct IP-IP Audio Connections? n
Session Establishment Timer(min): 3
                                                     IP Audio Hairpinning? n
       Enable Layer 3 Test? y
                                               Initial IP-IP Direct Media? n
H.323 Station Outgoing Direct Media? n
                                               Alternate Route Timer(sec): 6
```



Last Update: 9/26/2017

<u>Trunk Group</u>

The trunk group should be configured as follows. Important fields:

- Group Type: sip
- Group Name: Use a descriptive name.
- Direction: two-way
- Service Type: public-ntwrk
- **Signaling Group**: Use the signaling group configured in the previous step.
- Number of Members: Enter the number of trunks desired for the application.

		TRUNK GROUP		
Group Number:	1	Group Type: sip	CDR	Reports: y
Group Name:	SMGR	COR: 1	TN: 1	TAC: 100
Direction:	two-way	Outgoing Display? n		
Dial Access?	n	Nigh	t Service:	
Queue Length:	0			
Service Type:	public-ntwrk	Auth Code? n		
		Member A	ssignment	Method: auto
			Signaling	Group: 1
		N	umber of M	embers: 20

• **Numbering Format**: public. This field specifies the format of the calling party number sent to the far-end.

display trunk-group 4	Page 3 of 21
TRUNK FEATURES	
ACA Assignment? n	Measured: none
	Maintenance Tests? y
Numbering Format:	: public
	UUI Treatment: service-provider
	Replace Restricted Numbers? n
	Replace Unavailable Numbers? n
Show ANSWERED BY on Display? y	



Last Update: 9/26/2017

Page: 8 of 20

- Send Transferring Party Information: y
- Send Diversion Header: y

```
PROTOCOL VARIATIONS

Mark Users as Phone? n

Prepend '+' to Calling Number? n

Send Transferring Party Information? y

Send Diversion Header? y

Support Request History? y

Telephone Event Payload Type:
```



Last Update: 9/26/2017

Page: 9 of 20

Create a Hunt Group

Add a hunt group using the following command: **add hunt-group X (desired group number)** Hunt group should be configured as following: Important fields:

- -Group Number: Use number according to dial plan
- -Group Name: Use distinctive group name
- -Group Extension: Use desired extension to match dial plan
- -Group Type: ucd-mia
- -Message Center: sip-adjunct
- -Voice Mail Number: Use Hunt Group number
- -Voice Mail Handle: This will represent the SIP Header (ex. 5999@mutare.com) Use a unique identifier
- -Routing Digits: Use AAR feature access code

display hunt-group 20 60		Page 1 of
	HUN	IT GROUP
Group Number:	1	ACD? n
Group Name:	SAM - SIP	Queue? n
Group Extension:	7000	Vector? n
Group Type:	ucd-mia	Coverage Path:
TN:	1	Night Service Destination:
COR:	81	MM Early Answer? n
Security Code:		Local Agent Preference? n
ISDN/SIP Caller Display:	mbr-name	

change hunt-group 20 60				Page	2 of
	HUNT GROUP				
Message	e Center: sip-adjunc	t			
Voice Mail Number	Voice Mail Handle		Routing	Digits	
		(e.g.,	AAR/ARS	Access	Code)
5999	5999		*9		



Customer	Initials
Oustonici	minuals.

Last Update: 9/26/2017

Page: 10 of 20

Create Coverage Path:

.

Create a coverage path using the command: **add coverage path X** (desired number) Coverage path should be configured as follows: Important fields:

Coverage Criteria: Active:

- Inside Call-n Outside Call-n
- Busy: Inside Call-y Outside call-y
- Don't Answer: Inside Call-y Outside Call-y
- All: Inside Call-n Outside Call-n
- DND/SAC/Goto cover: Inside Call-y Outside Call-y
- Holiday Coverage: Inside Call-n Outside Call-n
- Number of Rings: 3
- Coverage Point 1: h(hunt group number created above)

COVERAGE PATH					
Covera Cvg Enabled for VDN Ne	ge Path Number: 1 Route-To Party? n xt Path Number:	. Hunt Linka	after Coverage? n ge		
COVERAGE CRITERIA					
Station/Group Status Active? Busy? Don't Answer? All? DND/SAC/Goto Cover? Holiday Coverage?	Inside Call n y y n y n	Outside Cal n Y Y n y n Y n	l Number of Rings: 3		
COVERAGE POINTS Terminate to Coverage Point1: h1 Point3: Point5:	Pts. with Bridge Rng: Point2: Point4: Point6:	d Appearances	? У		



Last Update: 9/26/2017

Page: 11 of 20

Add Route-Pattern

Add a route-pattern using the following command: **add route-pattern X (match dial plan)** Route-Pattern should be configured as follows: Important fields

- Route Pattern Name: Use unique identifier to match dialplan
- Group Number: Select the Signalling group number (this should match the SIP trunk)
- FRL: Choose an FRL that is equal to or lower than your station COR

		Pattern Number: 2 Pattern Name: SAM	
		SCCAN? n Secure SIP? n	
	Grp FRL NPA Pf	x Hop Toll No. Inserted	DCS/ IXC
	No Mr	k Lmt List Del Digits	QSIG
		Dgts	Intw
1:	1 0		n user
2:			n user
3:			n user
4:			n user
5:			n user
6:			n user
	BCC VALUE TS	C CA-TSC ITC BCIE Service/Feature PARM No. Numbe	ering LAR
	0 1 2 M 4 W	Request Dgts Forma	ıt
		Subaddress	
1:	yyyyyn n	rest	none
2:	yyyyyn n	rest	none
3:	yyyyyn n	rest	none
4:	yyyyyn n	rest	none
5:	yyyyyn n	rest	none
6:	yyyyyn n	rest	none



Last Update: 9/26/2017

Page: 12 of 20

Create entry in AAR (OR ARS, depending on your standard configuration):

Create an entry in the AAR using the following command: change aar analysis X (this should be the start of your hunt group number)

Dialed string should be configured as follows: Important Fields:

- Dialed String: Add hunt group number
- Total: Total length min and max of your hunt group (per dial plan)
- Route Pattern: Enter the newly created route-pattern
- Call Type: AAR

AAR DIGIT ANALYSIS TABLE							
			Location:	all		Percent Full:	2
Dialed	Tot	al	Route	Call	Node	ANI	
String	Min	Max	Pattern	Туре	Num	Reqd	
5	7	7	254	aar		n	
5999	4	4	2	aar		n	
52000	5	5	18	aar		n	
54000	5	5	104	aar		n	
55000	5	5	9	unku		n	
56000	5	5	50	aar		n	
57000	5	5	103	aar		n	
58000	5	5	101	aar		n	
59000	5	5	199	aar		n	
6	7	7	254	aar		n	
7	7	7	254	aar		n	
8	7	7	254	aar		n	
84749	5	5	13	aar		n	
9	7	7	254	aar		n	
						n	



Document #: 293

Last Update: 9/26/2017

Page: 13 of 20

Assign Coverage Path to Station

Change all applicable stations to cover to newly created coverage path using the following command: change station X (Station number)

Stations should be configure as follows: Important Fields:

• Coverage Path 1: Assign newly created coverage path

	STATION	
Extension: 69057	Lock Messages? n	BCC: 0
Type: 9640	Security Code: *	TN: 1
Port: S00048	Coverage Path 1: 1	COR: 6
Name: Brown, John	Coverage Path 2:	COS: 2
	Hunt-to Station:	
STATION OPTIONS		
	Time of Day Lock Table:	
Loss Group: 19	Personalized Ringing Pattern:	1
	Message Lamp Ext:	69057
Speakerphone: 2-way	Mute Button Enabled?	У
Display Language: english	Button Modules:	0
Survivable GK Node Name:		
Survivable COR: internal	Media Complex Ext:	
Survivable Trunk Dest? y	IP SoftPhone?	У
	IP Video Softphone?	n
	Customizable Labels?	



Document #: 293

Last Update: 9/26/2017

Page: 14 of 20

Change System Features:

Check the following fields using the command: **change system-parameters features** Configure features as follows: Important fields:

• Trunk-to-Trunk Transfer: all

change system-parameters features	Page 1 of 19						
FEATURE-RELATED SYSTEM PARAMETER	3						
Self Station Display Enabled? n							
Trunk-to-Trun	k Transfer: all						
Automatic Callback with Called Par	ty Queuing? n						
Automatic Callback - No Answer Timeout Interv	val (rings): 3						
Call Park Timeout Interval	(minutes): 10						
Off-Premises Tone Detect Timeout Interval	(seconds): 20						
AAR/ARS Dial Tor	ne Required? y						
Music (or Silence) on Transferred 5	'runk Calls? no						
DID/Tie/ISDN/SIP Intercept	Treatment: attd						
Internal Auto-Answer of Attd-Extended/Transfe	erred Calls: transferred						
Automatic Circuit Assurance (AG	CA) Enabled? n						
Abbreviated Dial Programming by Ass	gned Lists? n						
Auto Abbreviated/Delayed Transition Interv	val (rings): 2						
Protocol for Caller ID Analog	Terminals: Bellcore						
Display Calling Number for Room to Room Calle	er ID Calls? n						



Last Update: 9/26/2017

Page: 15 of 20

Avaya System Manager Configuration





Last Update: 9/26/2017

Page: 16 of 20

Select 'Adaptations'

						Last I	ogged on at Septemb	er 29, 2016 3:	27 AN		
Aura [®] System Manager 7.0					Mutare	G0		og orr adm	IN		
Home Routing ×											
▼ Routing	• Home	/ Elements	/ Routing / Adaptations						0		
Domains	ī							Help ?			
Locations	Ada	aptatio	ns								
Adaptations	New	Edit	Delete Duplicate M	re Actions 🔹							
SIP Entities	SIP Entities										
Entity Links	2 Ite	ems 🎅					Filte	r: Enable			
Time Ranges		Name	Module Name	Module Parameters			Egress URI Parameters	Notes			
Routing Policies		SAM	DigitConversionAdapter	fromto=true odstd=olaf.mutare.com osrcd=breezesesman.mutare.com iosrcd=breezecm.mutare.com	reduceRtHdrs=true						
Dial Patterns		Standard	DigitConversionAdapter								
Regular Expressions	Selec	t : All, None									
Defaults											

Add a new adaptation by clicking 'New"

Routing	Home / Elements / Routing / Adaptatio	ons				
Domains					H	lelp ?
Locations	Adaptation Details			Comr	mit Cancel	
Adaptations	General					
SIP Entities		* Adaptation Name:	SAM		7	
Entity Links		* Module Name:	Digit	ConversionAdapter 🔻		
Time Ranges	Mod	ule Parameter Type:	Name	e-Value Parameter 🔻		
Routing Policies						
Dial Patterns			Add	Remove		
Regular Expressions				Name 🔺	Value	
Defaults				fromto	true	
				iosrcd	breezecm.mutare.com	
				odetd	olaf.mutare.com	
						N NI
			Selec	t : All, None	IN Page 1 or 2	× ×1
	Egre	ess URI Parameters:				
		Notes:				

Add Remove								
0 Items 🛛 💝							Filte	r: Enable
Matching Pattern	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Adaptation Data	Notes

Digit Conversion for Outgoing Calls from SM

Add	Add Remove										
2 Ite	2 Items 🖑 Filter: Enable										
	Matching Pattern	► Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Adaptation Data	Notes		
	* 5003	* 4	* 4		* 0		both 🔻				
	* 5999	* 4	* 4		* 0		both 🔻				
									•		
Selec	t : All, None										

Commit Cancel



Last Update: 9/26/2017

Page: 17 of 20

Adaptation should be configured as follows. Important Fields:

- Adaptation Name: Set this to your desired name, in this case 'SAM'
- Module Name: Selcet DigitConversionAdapter from the drop down menu
- Module Parameter Type: Select Name-Value Parameter from the drop down menu Add the following parameters:
 - 1. Name: fromto Value: true
 - 2. Name:iosrcd Value: the FQDN of your CM (Not a requirement but recommended)
 - 3. Name:odstd Value: The FQDN or IP address of the SAM server (ex. Olaf.mutare.com)

Click 'Commit' to save changes

Add a SIP Entity

Select "SIP Entity" from the left side menu and Click 'New"





Last Update: 9/26/2017

Page: 18 of 20

SIP Entity Details	Commit
General	
* Name:	SAM
* FQDN or IP Address:	192.168.1.79
Туре:	SIP Trunk •
Notes:	
Adaptation:	SAM V
Location:	Rolling Meadows 🔻
Time Zone:	America/Chicago 🔻
* SIP Timer B/F (in seconds):	4
Credential name:	
Securable:	2
Call Detail Recording:	egress 🔻
Loop Detection	
Loop Detection Mode:	On 🔻
Loop Count Threshold:	5
Loop Detection Interval (in msec):	200
Name: Input name for SAM entity	(ex. SAM)

SIP Entity should be configured as follows. Important fields:

- FQDN or IP Address: Enter IP address of SAM server (ex. 192.168.1.79)
- Adaptation: Select SAM adaptation created above
- Entity Link: add a new entity link as depicted below (Note the transport method is UDP)

Entity Links

Override Port & Transport with DNS SRV: 📃

Add	Add Remove										
1 Ite	1 Item 🥭 Filter: Enable										
	Name	*	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Deny New Service		
	* SAM		Session Manager 🔻	UDP V	* 5060	SAM 🔻	* 5060	trusted 🔻			
Selec	t : All, None										

Commit the changes to save.



Last Update: 9/26/2017

Help ?

Page: 19 of 20

Create a Routing Policy

Click on Routing Policies on the left hand menu. Click 'new' to create a new routing policy.

Rou	Routing Policy Details										Cancel				
Gen	eral														
					* N	ame: SM t	o SAM								
					Disa	bled: 🔲									
					* Re	tries: 0									
					N	otes:									
SIP	Entity as	Desti	nation												
Sele	ct														
Nam	e		FQD	N or IP Add	Iress								Туре	Notes	
SAM	I		192	168.1.79									SIP Trunk		
Tim	Time of Day														
Add	Remove	View	Gaps/Overla	aps											
1 Ite	1 Item 🖓 Filter: Enable														
	Ranking		Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Tir	me	End Time	Notes	
	0		24/7			ø	1	1	1	a	00	0:00	23:59	Time Rai	nge 24/7
Selec	t : All, None														
	Patterns														
[Add]	Remove														
1 Iten															Filter: Enable
	Pattern		Min	May	Emer	rancy Call			SIR Domain		Ori	iginating L	cation		Notes
	5		4	4	Linci				-ALL-		Ro	olling Meador	ws		Notes
Select	: All, None														
Reau	lar Expres	sions													
Add	Remove	510113	·												
1 Iton															Filtor: Enable
1 Acci	Dattaur					Damk Ordan					Dam			Natar	Theer. Enable
	5					0					Den	Ŷ		notes	
Select	: All, None					•									
									C	ommit Ca	ncel				

Routing Policy should be configured as follows. Relevent Fields:

- Name: add descriptive name for a ASM to SAM policy
- Sip Entity as Destination: Click 'new" and add the SAM server as the destination

• Dial Pattern: Click add and create a dial pattern that matches the inbound number (ex. 5999) Click commit to save changes



Last Update: 9/26/2017

Page: 20 of 20

Create New Dial Pattern

Select Dial Patterns from the left side menu. Click 'New' to add new dial pattern.

Dial Pattern Details		Commit	
General			
*	Pattern: 5		
	* Min: 4		
	* Max: 4		
Emerger	cy Call: 🔲		
Emergency	Priority: 1		
Emergen	су Туре:		
SIP	Oomain: -ALL-	T	
	Notes:		

Originating Locations and Routing Policies

Ac	Add Remove											
3 1	3 Items 👌 Filter: Enable											
	D	Originating Location Name 🔺	Originating Location Notes	Routing Policy Name	Rank	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes				
		Rolling Meadows		SM to CM	0		Communication Manager					
		Rolling Meadows		SM to SAM	0		SAM					
		Rolling Meadows		CM to SM	0		Session Manager					
Se	ielect : All, None											

Dial patterns should be configured as followed. Relevant fields:

- Pattern: Enter a matching pattern of the SAM routing number (ex. 5999 or 5)
- Min: Selct minimum expected digits
- Max: Select maximum expected digits
- Sip Domain: Select all
- Originating locations and routing policy: Click 'add' and add all desired locations and routing policies that were created above for SAM.

Click commit to save changes.

