

Avaya Solution & Interoperability Test Lab

Application Notes for Configuring SNMP Connectivity with Avaya Communication Manager, Avaya Application Enablement Services and ION Networks SA5600 - Issue 1.0

Abstract

These Application Notes detail the configuration process that enables SNMP connectivity with Avaya Communication Manager, Avaya Application Enablement Services, and ION Networks SA5600.

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

As IP telephony continues to grow and evolve, managing the infrastructure that provides telephony services becomes an important issue that network administrators need to address. ION Networks SA5600 is a dedicated network management platform which provides network administrators SNMP monitoring of devices, including the IP telephony infrastructure.

1.1. Network Diagram

The network diagram in **Figure 1** illustrates the sample environment used for compliance testing. The network consists of multiple IP networks routed together to provide an operations and administration environment. Within each IP network, the default gateway for that network is assigned an IP address with the last octet being 254. For example, the default gateway on the 10.1.1.0/24 network is 10.1.1.254. The network is made up of Avaya Communication Manager, Avaya Application Enablement Services and ION Networks SA5600. The ION Networks SA5600 is connected to the PSTN via an analog modem which provides dial out access to an external Network Management System (NMS).



Figure 1: Sample Network Environment

2. Equipment and Software Validated

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

Equipment	Software	
Avaya S8300 Server	Avaya Communication Manager	
	4.0 (R014x.00.0.730.5)	
Avaya G700 Media Gateway	26.31.0	
MM711 Analog Media Module	HW04 / FW87	
MM712 DCP Media Module	HW05 / FW08	
Avaya Application Enablement Services	3.1.2	
ION Networks SA5600	1.0.5	

3. Avaya Communication Manager Configuration

Avaya Communication Manager SNMP configuration is administered using the web interface. In the sample network Avaya Communication Manager was assigned the IP address 192.168.77.1 and the URL <u>http://192.168.77.1</u> was used to access the web interface. Login credentials are required to access web interface. For information on how to access the web interface on Avaya Communication Manager refer to [1]. Once logged in, all configuration is performed by selecting the **Launch Maintenance Web Interface** link (not shown).

Step	Description				
1.	Navigate to the Add Trap Destination web page by clicking SNMP Traps under				
	Alarms within the left-side navigation panel. Enter the information displayed below and				
	then click Add . Check the Check to enable this destination check box. IP address is the IP address assigned to the ION Networks SA5600, see Figure 1 . Click the SNMP version 2c radio button and use the drop-down list for Notification type to select "trap".				
	Community name can be any descriptive text and in the sample network "ion-test" was				
	used.				
	🚰 M5001 - Microsoft Internet Explorer				
	Elle Edit View Favorites Iools Help				
	🔇 Back 🔹 🕤 - 🖹 🖹 🏠 🔎 Search 🔅 Favorites 😻 Media 🤣 😥 + 🖕 🗔				
	Address 2 https://192.168.77.1/cgi-bin/maint/Main				
	AVAVA				
	Heln Exit				
	Alarms Add Trap Destination				
	Agent Status SNMP Agents Fill-In IP address and provide data for one of the three SNMP versions.				
	SNMP Traps Filters				
SNMP Test Diagnostics Check to enable this destination.					
	System Logs IP address: 192 . 45 . 150 . 199				
	Traceroute				
	Modem Test Network Time Sync				
	Server C SNMP version 1 Status Summary				
	Process Status Community name:				
	Server Date/Time Software Version				
	Configure Server				
Restore Defaults Eject CD-ROM Server Upgrades Manage Software Make Degrade Permanent Community name: ion-test					
			Boot Partition Manage Updates		
	IPSI Firmware Upgrades Data Backup/Restore				
	Backup History C SNMP version 3				
	Backup Logs Notification type: trap				
	Restore History User name:				
	Administrator Accounts Security Model: None				
	Server Access Authentication Password: Must be at least 8 characters Syslog Server				
	License File Privacy Password: Must be at least 8 characters Authentication File				
	Firewall Engine ID: [local Engine ID] Tripwire				
	Tripwire Commands Install Root Certificate				
	Web Access Mask				
	Configuration Add Help				

Step	Description						
2.	Navigate to the F	Navigate to the Firewall web page by clicking Firewall under Security within the left-					
	side navigation panel. Check the snmp and snmptrap check boxes for both Input to						
	Server and Output from Server Click Submit						
	berver and outp						
		🖓 M5001 - Microsoft Internet Explo	er				
		File Edit View Favorites Tools	Help				
		🔾 Back • 🔿 • 💌 😰 🏠 🔑 S	earch 👷	avorites	😽 Media 🚱	• & 🖂	
		Address https://192.168.77.1/cgi-bir	/maint/maint	Main			
		Help Exit					
		Current Alarms Agent Status SNMP Agents SNMP Traps Filters SNMP Test	Input to Server	Output from Server	Service	Port/Protocol	
		Diagnostics Restarts	ম	2	ftp	21/tcp	
		Ping	2	-	ssh	22/tcp	
		Netstat	2	V	telnet	23/tcp	
		Modem Test Network Time Sync		2	domain	53/udp	
		Server Status Summary			bootps	67/udp	
		Process Status Shutdown Server			bootpc	68/udp	
		Server Date/Time Software Version	2		tftp	69/udp	
		Server Configuration Configure Server		5	http	80/tcp	
		Restore Defaults		2	ntp	123/udp	
		Server Upgrades	2	2	snmp	161/udp	
		Make Upgrade Permanent	~	~	snmptrap	162/udp	
		Manage Updates	V	2	https	443/tcp	
		Data Backup/Restore			shell	514/tcp	
		Backup Now Backup History			shell-stderr	512:1023/tcp	
		Schedule Backup Backup Logs		5	syslog	514/udp	
		View/Restore Data Restore History			Idap	389/tcp	
		Security Administrator Accounts			Idaps	636/tcp	
		Modem Server Access			radius	1812/udp	
		Syslog Server			securID	5500/udp	
		Authentication File			safeword	5030/tcp	
		Firewall			http-ipphone	81/tcp	
		Tripwire Commands Install Root Certificate			https-ipphone	411/tcp	
		SSH Keys Web Access Mask	V		hp-sshd	2222/tcp	
		Media Gateways Configuration	2	2	secure-sat	5022/tcp	
		Miscellaneous File Synchronization	2	2	def-sat	5023/tcp	
		IP Phones Download Files	N	ব	echo-request	8/icmp	
		CM Phone Message File Tftpboot Directory Serial Numbers	Submi	£	Advanced Setti	ng Help	

4. Avaya Application Enablement Services Configuration

Avaya Application Enablement Services SNMP configuration is administered using the web interface. In the sample network Avaya Application Enablement Services was assigned the IP address 192.45.150.200 and the URL <u>http://192.45.150.200:8080</u> was used to access the web interface. Login credentials are required to access web interface. For information on how to access the Avaya Application Enablement Services web interface refer to [2]. Once logged in, all configuration is performed from the **CTI OAM Home** web page.

Step	Description				
1.	Navigate to the ADD SNMP Trap web page by clicking Alarms and then SNMP Traps . Enter the information displayed below and then click Apply . Check the Enabled check box. Use the drop-down list for Device to select "SSG". IP Address is the IP address assigned to the ION Networks SA5600, see Figure 1 . Use the drop-down list for SNMP Version to select "2c". Security Name can be any descriptive text, which is used as the SNMP community string, and ir the sample network "notpublic" was used. Port was left at the default value of "162".				
	https://192.45.150.200:8443/MVAP/action/cti/snmpTrap.do - Microsoft Internet Explorer				
	Elle Edit View Favorites	ools Help			
	$\Rightarrow Back \rightarrow - \bigcirc \bigcirc \square$	🕲 Search 📾 Favorites 🞯 Media 🎯 📴 🗃 🚍			
	Address i https://192.45.150.2	10:8443/MVAP/action/cti/snmpTrap.do			
	AVAYA Application Enablement Service Operations Administration and Maintenance				
	G OAM Home Ologo CTLOAM Home You are here: > Alarms > SNMP Traps				
	Administration Status and Control Add SNMP Trap				
	Maintenance Alarms Enabled SNMP Traps Device: SSG				
	Alarm Viewer	IP Address: 192.45.150.199			
	 Logs Utilities 	Port: 162			
	▶ <u>Help</u>	Notification Type:			
	144	SNMP Version: 2c -			
		Security Name: notpublic			
		Authentication Protocol: None			
		Authentication Password: Confirm Password:			
		Privacy Protocol: None 💌			
		Privacy Password: Confirm Password:			
		Apply Cancel			
	-				

5. ION Networks SA5600 Configuration

The ION Networks SA5600 configuration is performed via a console cable connection directly to the ION Networks SA5600 serial port. For complete information on how to setup and access an ION Networks SA5600 see **Section 10** [**3**]. All configuration of the ION Networks SA5600 is performed via a command line interface.

Step	Description			
1.	Jescription Issue the snp command to configure the IP address information. After issuing the snp command, a sub-menu is displayed. Use "1" to access the Network Initialization Params. External Address is the IP address assigned to the ION Networks SA5600, see Figure 1. Mask is the IP subnet mask associated with the External Address IP address and in the sample network "255.255.255.0" was used. Default Gateway is the IP address of the default gateway. The values used here are applicable to the sample configuration. 5010000000>snp Set Network Params 1 = Network Initialization Params 2 = SNMP Manager Params 3 = FTP Params 4 = PPP Params 5 = Telnet Params Select Group>1			
	External Address 192.45.150.199 Mask 255.255.255.0 Default Gateway 192.45.150.254			

Step	Description				
2.	Issue the SSP 3 command to administer system parameters. Home Phone Number 1				
	(Default) is the telephone number of the external NMS. Report Multiple Alarms is set				
	to "Yes". Default Action Routine Modem is set to "Modem #1".				
	5010000000> SSP 3				
	Set System Parameters				
	Action Routine Parameters				
	Home Phone Number 1 (Default)	18005551212			
Home Phone Number 2					
	Home Phone Number 3				
	Delay Before Transmit (sec)	5			
	Report Multiple Alarms ?	Yes			
	Default Pager Number				
	Default Pin Number				
	Default Pager Message	Modem #1			
	Derduit Action Routine Modem	Modem #1			
	10/05/07 14:26:15 CEAE {I} [T1:31]	Set System Parameters			
3.	Issue the aaip command to add an Avay	TAIP Device to the system. Device name is any ark "A your Communication Managar" was used			
	descriptive text and in the sample netwo	TK Avaya-Communication-Ivianager was used			
	for the Avaya Communication Manager	system. IP address and Avaya IP Address are			
	the IP address assigned to Avaya Comm	iunication Manager, see Figure I. Terminal			
	Connection Type was set to "Telnet".	Ports are the actual network ports used for			
	communication (80 for web, 443 for sec	sure http, etc.). Host Equipment Type was set to			
	"Intuity". The value used for HOST Eq	uipment Type is used to classify the type of			
	equipment and ION Networks uses "Intuity" for VoIP equipment. Comments can be any				
	descriptive text.				
	I I I I I I I I I I I I I I I I I I I				
	5010000000> aaip				
	Add Avaya IP Device				
	IP Address 192 16	77 1			
	Avaya IP Address 192.16	58.77.1			
	Terminal Connection Type Telnet				
	Ports 80,443	80,443,22,23,5023			
	Host Equipment Type Intuit	y Gammuniaatian Managan			
	Avaya-				
	Reinitializing rules for Avaya dev	ices			
4	Repeat Step 3 to create an entry for Ave	va Application Enablement Services using the			
	The second of the second and the second of the second seco	ga reprivation Endorement bet vices using the			
1.	appropriate IP address and "22" for Por	ts			

6. Interoperability Compliance Testing

The interoperability compliance testing focused on verifying the capability of ION Networks SA5600 to receive SNMP traps from Avaya Communication Manager and Avaya Application Enablement Services and then dialing out via a modem to an external NMS where SNMP traps are uploaded.

6.1. General Test Approach

The general test approach was to generate an IP based SNMP traps on the Avaya platforms and verify that the ION Networks SA5600 was capable of receiving, interpreting and processing those traps. SNMP traps were then uploaded via a modem to an external NMS. Additional testing verified the capability of ION Networks SA5600 to log into Avaya Communication Manager and Avaya Application Enablement Services using telnet or ssh, based on the access method supported by the specific platform.

6.2. Test Results

ION Networks SA5600 passed all test cases. ION Networks SA5600 was verified to be capable of receiving SNMP traps from Avaya Communication Manager and Avaya Application Enablement Services. ION Networks SA5600 was also verified to be capable of uploading those SNMP traps via a modem to an external NMS. ION Networks SA5600 was verified to be capable of accessing Avaya Communication Manager via a telnet or ssh connection. ION Networks SA5600 was also verified to be capable of accessing Avaya communication for Manager via a telnet or ssh connection. ION Networks SA5600 was also verified to be capable of accessing Avaya Application Enablement Services via an ssh connection.

7. Verification Steps

- Verify that the ION Networks SA5600 has IP connectivity by issuing ping commands to the configured systems. Note: The ability to successfully use ping commands may depend on how the customer's network is configured to support ICMP traffic.
- Verify that the Avaya platforms have the correct IP address configured for the ION Networks SA5600. Refer to **Section 3 Step 1** and **Section 4 Step 1**.
- Generate diagnostic test traps and verify they are received, interpreted and processed by the ION Networks SA5600. Test traps for Avaya Communication Manager can be generated via the web interface. A trap for Avaya Application Enablement Services can be created by removing and then restoring a network connection.
- Verify that the firewall setting for Avaya Communication Manager allows **snmp** and **snmptraps** to pass through the firewall. Refer to **Section 3 Step2.**
- Verify the **Device** type for Avaya Application Enablement Services is set to "SSG". Refer to **Section 4 Step 1**.

8. Support

Support information for ION Networks SA5600 can be obtained through the following:

- Phone: 1-800-722-8986
- Email: <u>info@ion-networks.com</u>
- Web: <u>http://www.ion-networks.com/support.html</u>

9. Conclusion

These Application Notes detail the configuration steps that enable SNMP connectivity with Avaya Communication Manager, Avaya Application Enablement Services and ION Networks SA5600. These Application Notes demonstrate the configuration process that enables ION Networks SA5600 to access Avaya Communication Manager using telnet or ssh and Avaya Application Enablement Services using ssh. These Application Notes also detail the configuration process that allows the ION Networks SA5600 to dial out via a PSTN connection to an external NMS.

10. Additional References

The following references are available at <u>http://support.avaya.com</u>:

- [1] Administrator Guide for Avaya Communication Manager, February 2007, Issue 3.1, Document Number 03-300509
- [2] Avaya MultiVantage Application Enablement Services Administration and Maintenance Guide Release 3.1.2, September 2006, Issue 4, Document Number 02-300357

The following reference is available upon request at <u>http://www.ion-networks.com/support.html</u>:

[3] *ION Network's SA5600 Administration Guide*, February 2007, Issue 1, Document Number 01-13524

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