

Avaya Solution & Interoperability Test Lab

Application Notes for Nectar for Avaya with Avaya Aura® Application Enablement Services - Issue 1.0

Abstract

These Application Notes describe the configuration steps required to integrate Nectar for Avaya with Avaya Aura® Application Enablement Services. Nectar for Avaya is a performance monitor that provides a comprehensive view of unified communications and contact center environments. It captures information about the DMCC and TSAPI services running on Avaya Aura® Application Enablement Services, such as link status, service state, licenses acquired and errors, number of active sessions, and messages sent, using SNMP polling. Nectar for Avaya also captures alarms using SNMP traps.

Readers should pay attention to **Section 2**, in particular the scope of testing as outlined in **Section 2.1** as well as the observations noted in **Section 2.2**, to ensure that their own use cases are adequately covered by this scope and results.

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 configuration steps required to integrate Nectar for Avaya with Avaya Aura® Application Enablement Services (AES). Nectar for Avaya is a performance monitor that provides a comprehensive view of unified communications and contact center environments. It captures information about the Device, Media, and Call Control (DMCC) and Telephony Service Application Programming Interface (TSAPI) services running on Avaya Aura® Application Enablement Services, such as link status, service state, licenses acquired and errors, number of active sessions, and messages sent, using Simple Network Management Protocol (SNMP) polling. Nectar for Avaya also captures alarms using SNMP traps.

The following table specifies the SNMP versions supported between Nectar and Avaya Aura® Application Enablement Services for SNMP traps and polls.

Avaya Product	Data Type	SNMP Version(s)
Avaya Aura® Application Enablement Services	SNMP Traps	SNMPv2c, v3
	SNMP Polling	SNMPv2c, v3

2. General Test Approach and Test Results

The interoperability compliance test included feature and serviceability testing. The feature testing focused on the ability of Nectar to capture information about AES DMCC and TSAPI services and alarms using SNMP. The data was displayed on the Nectar Remote Intelligence Gateway (RIG) client.

The serviceability testing focused on verifying that the Nectar came back into service after reconnecting the Ethernet cable (i.e., restoring network connectivity) and restarting Nectar.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

Avaya recommends our customers implement Avaya solutions using appropriate security and encryption capabilities enabled by our products. The testing referenced in these DevConnect Application Notes included the enablement of supported encryption capabilities in the Avaya products. Readers should consult the appropriate Avaya product documentation for further information regarding security and encryption capabilities supported by those Avaya products.

Support for these security and encryption capabilities in any non-Avaya solution component is the responsibility of each individual vendor. Readers should consult the appropriate vendor-supplied product documentation for more information regarding those products.

For the testing associated with these Application Notes, the interface between Avaya systems and Nectar for Avaya used SNMPv3 for SNMP.

2.1. Interoperability Compliance Testing

Interoperability compliance testing covered the following Nectar features and functionality.

- Collecting DMCC and TSAPI service data (i.e., service state, link state, license info, active sessions, and messages sent) from AES using SNMPv2c and v3 polling.
- Capturing SNMP traps for AES alarm conditions using SNMPv2c and v3 traps.
- Displaying the AES DMCC and TSAPI data and AES alarms in the RIG client.
- Verifying proper system recovery after a restart of Nectar and loss of IP network connectivity.

2.2. Test Results

All tests passed with the following observation:

- In AES 10.1.0.2, SNMPv3 trap receiver configuration is performed via the OAM web-based interface and also requires manually modifying the /etc/snmp/snmpd.conf configuration file. This is not required when configuring SNMPv2c traps. Refer to Section 5.3.1.
- When SNMPv3 traps is configured, AES also sends Inform Requests to the SNMP trap receiver.
- If AES is configured for SNMPv3 traps, but SNMPv2c traps are also being sent by AES, remove SNMPv2c traps by using the configureNMS.sh command as described in Section 5.3.1.

2.3. Support

For technical support and information on Nectar for Avaya, contact Nectar Support at:

■ Phone: +1 (888) 811-8647 (US)

+1 (631) 270-1077 (outside the US)

• Website: https://support.nectarcorp.com

■ Email: <u>support@nectarcorp.com</u>

3. Reference Configuration

Figure 1 illustrates a sample configuration consisting of Nectar for Avaya in an Avaya Aura® environment, including AES. Nectar captured data and alarms from AES using SNMP and displayed them on the RIG client.

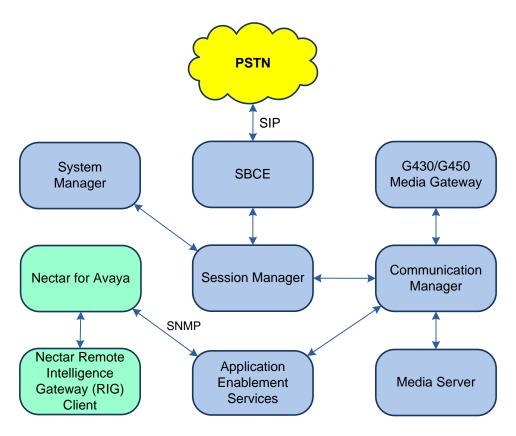


Figure 1: Nectar for Avaya with Avaya Aura® Application Enablement Services

4. Equipment and Software Validated

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

Equipment/Software	Release/Version	
Avaya Aura® Communication Manager	10.1.0.1.0-SP1	
Avaya G430 Media Gateway	FW 42.8.0 Vintage 1	
Avaya G450 Media Gateway	FW 42.7.0 Vintage 3	
Avaya Aura® Media Server	v.10.1.0.77	
Avaya Aura® System Manager	10.1.0.1 Build No. – 10.1.0.0.537353 Software Update Revision No: 10.1.0.1.0614394 Service Pack 1	
Avaya Aura® Session Manager	10.1.0.1.1010105	
Avaya Session Border Controller for Enterprise	10.1.1.0-35-21872	
Avaya Aura® Application Enablement Services	10.1.0.2.0.12-0	
Nectar for Avaya	2022.1-21422	
Nectar Remote Intelligence Gateway (RIG) Client	2022.1-20314	

5. Configure Avaya Aura® Application Enablement Services

This section covers the configuration of SNMP traps and polling on AES using the OAM web-based interface. The procedure includes the following areas:

- Launch OAM Interface
- Administer SNMP Agent Settings
- Administer SNMP Trap Receiver Configuration

5.1. Launch OAM Interface

AES is configured via the OAM web interface. To access the web interface, enter **https://**<*ip-addr*> as the URL in a web browser, where <*ip-addr*> is the AES IP address. Log in using the appropriate credentials.



Application Enablement Services

Management Console



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The **Welcome to OAM** screen is displayed.



Management Console

Welcome: User cust

Last login: Thu Feb 23 13:43:01 2023 from

192.168.100.251 Number of prior failed login attempts: 0

HostName/IP: devcon-aes/10.64.102.119 Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE SW Version: 10.1.0.2.0.12-0

Server Date and Time: Fri Feb 24 12:22:48 EST 2023

HA Status: Not Configured

Home | Help | Logout



Welcome to OAM

The AE Services Operations, Administration, and Management (OAM) Web provides you with tools for managing the AE Server. OAM spans the following administrative domains:

- AF Services Use AF Services to manage all AF Services that you are licensed to use on
- · Communication Manager Interface Use Communication Manager Interface to manage
- switch connection and dialplan. High Availability Use High Availability to manage AE Services HA.
- Licensing Use Licensing to manage the license server.

 Maintenance Use Maintenance to manage the routine maintenance tasks.
- Networking Use Networking to manage the network interfaces and ports.
- Security Use Security to manage Linux user accounts, certificate, host authentication and authorization, configure Linux-PAM (Pluggable Authentication Modules for Linux)
- and so on.

 Status Use Status to obtain server status informations.
- User Management Use User Management to manage AE Services users and AE Services user-related resources.
- Utilities Use Utilities to carry out basic connectivity tests.
- . Help Use Help to obtain a few tips for using the OAM Help system

Depending on your business requirements, these administrative domains can be served by one administrator for all domains, or a separate administrator for each domain.

5.2. Administer SNMP Agent Settings

Navigate to **Utilities** → **SNMP** → **SNMP Agent** to enable SNMP polling. In the sample configuration below, SNMP polling using SNMPv2c and SNMPv3 are configured simultaneously for informational purposes. Note that only one SNMP version needs to be configured.



Management Console

Welcome: User cust Last login: Thu Feb 23 13:43:01 2023 from 192.168.100.251 Number of prior failed login attempts: 0 HostName/IP: devcon-aes/10.64.102.119 Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE SW Version: 10.1.0.2.0.12-0 Server Date and Time: Fri Feb 24 12:24:12 EST 2023 HA Status: Not Configured

Utilities SNMP SNMP Agent		Home Help Logout
AE Services Communication Manager Interface	SNMP Agent	
High Availability	MIB II System Group Data:	
	Location: Unknown	
→ Licensing	Contact: Unknown	
→ Maintenance	SNMP Protocol Access:	
Networking	☐ Enable SNMP Version 1	
> Security	Community Name:	
→ Status	✓ Enable SNMP Version 2c	
▶ User Management	Community Name: nectar	
▼ Utilities	✓ Enable SNMP Version 3	
▶ Diagnostics	User	
Email Notification	User Name: nectar	
▶ HMDC	Authentication Protocol: SHA V	
▼SNMP	Authentication Password:	
Product ID	Privacy Protocol: AES V	
 SNMP Agent 	Privacy Password:	
 SNMP Trap Receivers 	Authorized IP Addresses for SNMP Access*	
→ Help	O No Access	
	Any IP Addresses	
	O Following IP Addresses	
	IP Address 1:	
	IP Address 2:	
	IP Address 3:	
	IP Address 4:	
	IP Address 5:	
	Apply Changes Cancel Changes	
	Note: There is no ip access restriction on Software Only for SNMP Version 3.	

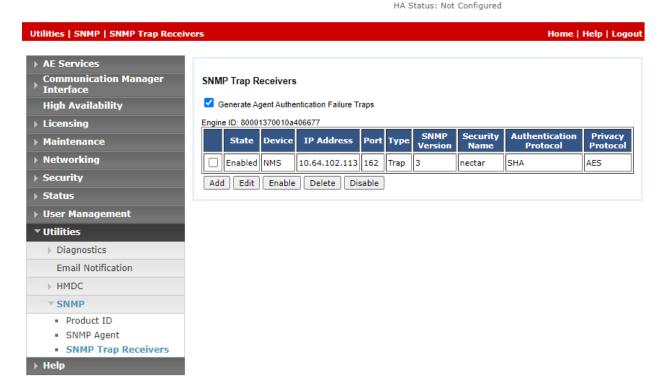
5.3. SNMP Trap Receiver Configuration

This section covers SNMP trap receiver configuration on AES. On the OAM web interface, navigate to **Utilities** \rightarrow **SNMP** \rightarrow **SNMP Trap Receivers** to enable SNMP traps. In **SNMP Trap Receivers**, enable **Generate Agent Authentication Failure Traps** as shown below. Click **Add** to add an SNMP trap receiver.



Management Console

Welcome: User cust
Last login: Thu Feb 23 13:43:01 2023 from
192.168.100.251
Number of prior failed login attempts: 0
HostName/IP: devcon-aes/10.64.102.119
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 10.1.0.2.0.12-0
Server Date and Time: Fri Feb 24 12:25:03 EST 2023



The **SNMP Trap** page is displayed. For SNMPv2c traps, configure the following fields:

• **Enabled:** Enable the SNMP trap receiver.

■ **Device:** Set to *NMS*.

■ **IP Address:** Set to Nectar IP address (e.g., 10.64.102.113).

• **Port:** Set to default SNMP trap port *162*.

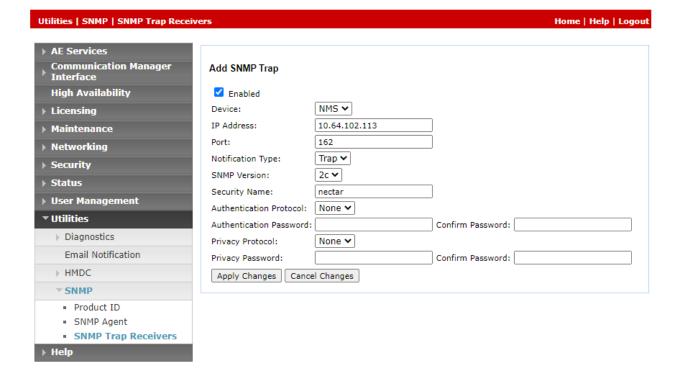
Notification Type: Set to *Trap*.
 SNMP Version: Set to *v2c*.

• **Security Name:** Set to a valid community name (e.g., *nectar*).



Management Console

Welcome: User cust Last login: Thu Feb 23 13:43:01 2023 from 192.168.100.251 Number of prior failed login attempts: 0 HostName/IP: devcon-aes/10.64.102.119 Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE SW Version: 10.1.0.2.0.12-0 Server Date and Time: Fri Feb 24 12:25:56 EST 2023 HA Status: Not Configured



For SNMPv3 traps, configure the following fields in addition to the ones specified above for SNMPv2c traps. The following fields apply to SNMPv3 only and must match the SNMP configuration on Nectar configured in **Section 6.3**.

Security Name: Specify a valid security name (e.g., nectar).
 Authentication Protocol: Select the authentication protocol, such as SHA.

• Authentication Password: Specify an authentication password.

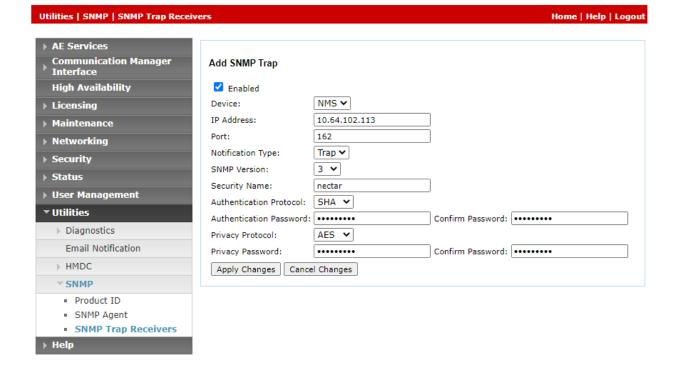
• **Privacy Protocol:** Select the privacy protocol, such as *AES128*.

Privacy Password: Specify a privacy password.



Management Console

Welcome: User cust
Last login: Thu Feb 23 13:43:01 2023 from
192.168.100.251
Number of prior failed login attempts: 0
HostName/IP: devcon-aes/10.64.102.119
Server Offer Type: VIRTUAL_APPLIANCE_ON_VMWARE
SW Version: 10.1.0.2.0.12-0
Server Date and Time: Fri Feb 24 12:26:36 EST 2023
HA Status: Not Configured



5.3.1. Configure /etc/snmpd/snmpd.conf File

After configuring SNMP traps as described in **Section 5.3**, verify that the /etc/snmp/snmpd.conf file on AES is correct. Root access is required to perform the following operations.

For SNMPv2c traps, the snmpd.conf file should contain the following entries in **USM** configuration entries section. No manual changes should be required for SNMPv2c.

```
# USM configuration entries trap2sink 10.64.102.113 162 authtrapenable 1
```

For SNMPv3 traps, the snmpd.conf file should contain the following entries in **USM** configuration entries section. The **trapsess** command should be added manually to the file with the SNMPv3 credentials configured in **Section 5.3** as shown below.

```
# USM configuration entries trapsess -u nectar -a SHA -A nectar123 -x AES -X nectar123 10.64.102.113 162 authtrapenable 1
```

If SNMPv3 traps is configured, but SNMPv2c traps are also being sent by AES, run the /opt/spirit/scripts/configureNMS.sh -l command to view the SNMP trap versions configured on AES as shown below. If SNMPv2c traps are also listed, remove SNMPv2c traps with the configureNMS.sh command.

```
[root@devcon-aes snmp]# /opt/spirit/scripts/configureNMS.sh -1 10.64.102.113 162 nectar trap v2 10.64.102.113 162 nectar inform v3 10.64.102.113 162 nectar trap v3 [root@devcon-aes snmp]# /opt/spirit/scripts/configureNMS.sh -r -v v2 10.64.102.113 162 v2 trap destination(10.64.102.113) removed
```

If changes were made manually to the snmpd.conf file or an SNMP trap version was removed via the configureNMS.sh command, restart the following services.

```
[root@devcon-aes snmp]# /usr/bin/systemctl restart snmpd.service
[root@devcon-aes snmp]# /usr/bin/systemctl restart aesvcsSpiritAgent.service
```

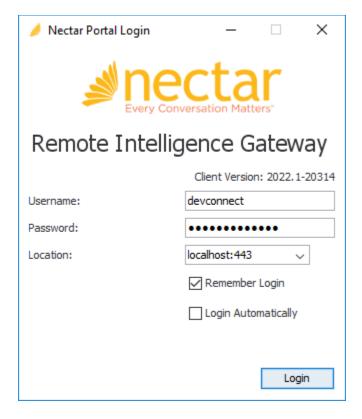
6. Configure Nectar for Avaya

This section covers the Nectar SNMP configuration for AES. The configuration was performed via the **RIG Client**. The procedure covers the following areas:

- Launch the RIG Client
- Configure SNMP Polling Access
- Configure SNMP Traps

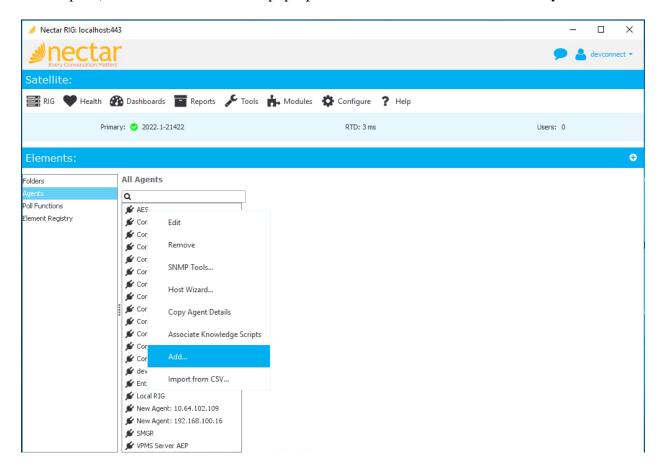
6.1. Launch the RIG Client

In an Internet browser, enter the Nectar IP address in the URL field. The RIG client software is downloaded. Install and run the RIG client. In the **Nectar Portal Login** screen, enter the user credentials and click **Login**.



6.2. Configure SNMP Polling Access

Navigate to **Health** → **Elements** → **Agents** and right-click in the **All Agents** section (i.e., middle pane) and select **Add** from the pop-up menu as shown below to add an entry for AES.



The **Add Agent** dialog box is displayed as shown below. This configuration allows the SNMPv2c or SNMPv3 polling to AES.

To configure SNMPv2c polling, configure the following fields:

• Name: Provide a descriptive name (e.g., *AES*).

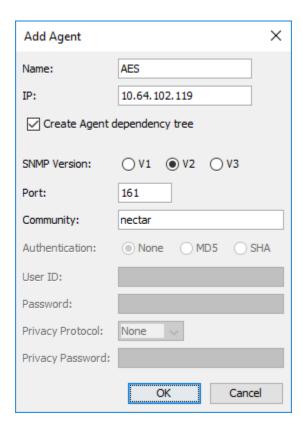
• **IP:** Provide the AES IP address (e.g., 10.64.102.119).

SNMP Version: Specify SNMPv2c for SNMP polling.
 Port: Specify port 161 for SNMP polling.

• Community: Specify the community name (e.g., *nectar*) as configured in

AES in Section 5.2.

Click **OK** to submit the form.



To configure SNMPv3 polling, configure the following fields:

• Name: Provide a descriptive name (e.g., *AES*).

• **IP:** Provide the AES IP address (e.g., 10.64.102.119).

SNMP Version: Specify SNMPv3 for SNMP polling.
 Port: Specify port 161 for SNMP polling.

• **Authentication:** Specify *SHA* authentication.

User ID: Specify the User Name (e.g., nectar) configured in Section 5.2.
 Password: Specify the Authentication Password configured in AES in

Section 5.2.

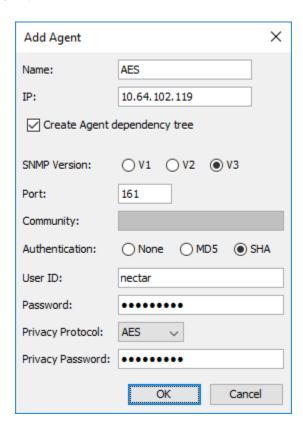
• **Privacy Protocol:** Specify *AES* privacy protocol.

• **Privacy Password:** Specify the **Privacy Password** configured in AES in **Section 5.2**.

• User ID: Specify the User Name (e.g., nectar) configured in AES in

Section 5.2.

Click **OK** to submit the form.



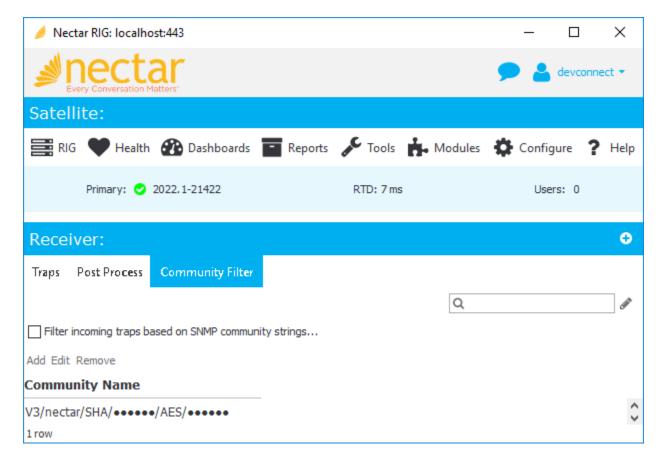
6.3. Configure SNMP Traps

Navigate to **Configure** → **Receiver** and select the **Community Filter** tab. The Community Filter serves two purposes:

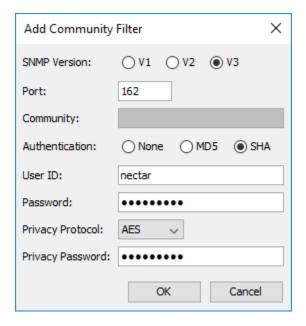
- Filter SNMPv2c traps based on community name (optional).
- Configure credentials for SNMPv3 traps (required).

This section covers the configuration of credentials for SNMPv3 traps. Click Add.

Note: There is no additional configuration required to allow SNMPv2c traps.



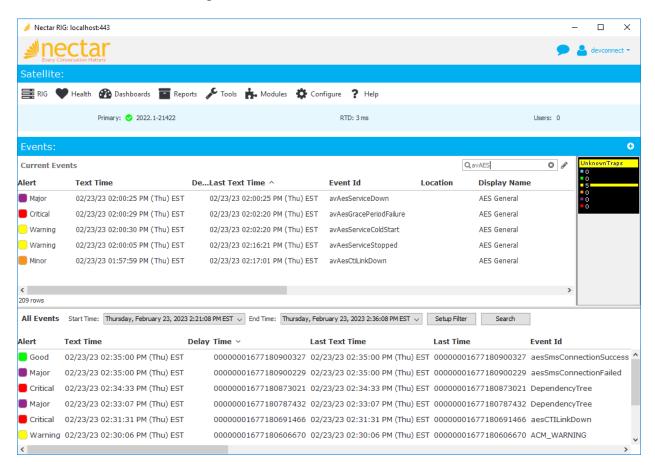
In **Add Community Filter**, set the **SNMP Version** to *V3*, the **Port** to *162*, and specify the credentials as configured on AES. Click **OK**.



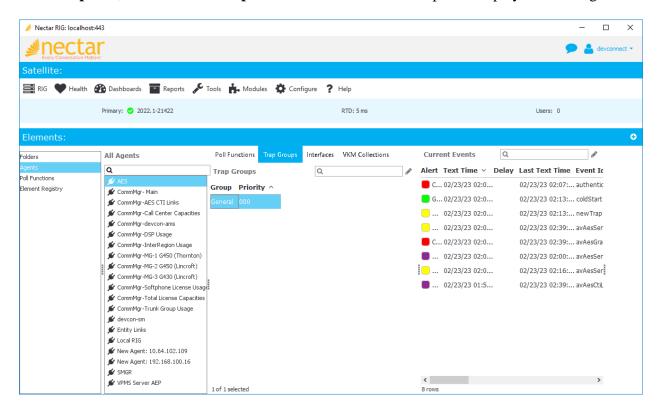
7. Verification Steps

This section provides the tests that can be performed to verify proper configuration of Nectar for Avaya and AES.

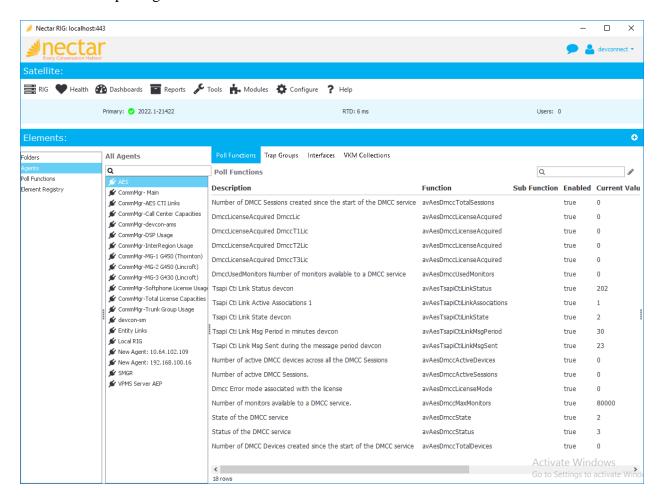
1. Generate AE alarm conditions, such as a CTI link down condition. Navigate to **Health** → **Events** to view SNMP traps and events as shown below.



2. Alternatively, AES alarms may also be viewed by navigating to **Health** → **Elements** → **Agents**. Select *AES* under **All Agents** and then select the **Trap Groups** tab. In the **Trap Groups** tab, click on the **Group** as shown below. SNMP traps are displayed to the right.



3. Navigate to **Health** → **Elements** → **Agents** and then select *AES* under **All Agents** to view the SNMP polling data as shown below.



8. Conclusion

These Application Notes described the configuration steps required to integrate Nectar for Avaya with Avaya Aura® Application Enablement Services using SNMP. The compliance test passed with observations noted in **Section 2.2**.

9. Additional References

This section references the Avaya documentation relevant to these Application Notes.

[1] *Administering Avaya Aura*® *Application Enablement Services*, Release 10.1.x, Issue 6, February 2023, available at http://support.avaya.com.

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