



**Avaya Solution & Interoperability Test Lab**

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## **Application Notes for NetScout nGenius with Avaya Communication Manager and Extreme Networks Summit48 - Issue 1.0**

### **Abstract**

These Application Notes describe the configuration steps required for NetScout nGenius to successfully interoperate with Avaya Communication Manager and an Extreme Networks Summit48. Ports associated with IP telephones were mirrored to a single port connected to the NetScout nGenius probe to allow monitoring of the phones. Features and functionality were validated and performance testing was conducted in order to verify operation under load. Information in these Application Notes has been obtained through compliance testing and additional technical discussions. Testing was conducted via the Developer*Connection* Program at the Avaya Solution and Interoperability Test Lab.

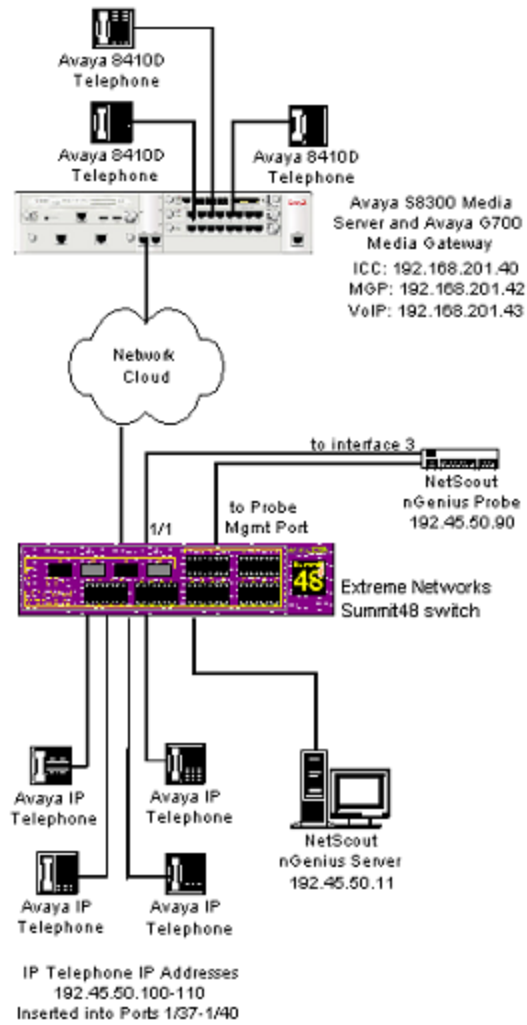
# 1. Introduction

These Application Notes describe the compliance-tested configuration utilizing Avaya Communication Manager on an Avaya S8300 Media Server and Avaya S8700 Media Server (IP Connect configuration) to allow NetScout nGenius to monitor H.323 voice traffic. An Extreme Networks Summit48 switch allowed the mirroring of multiple ports to a single port connected to the nGenius probe.

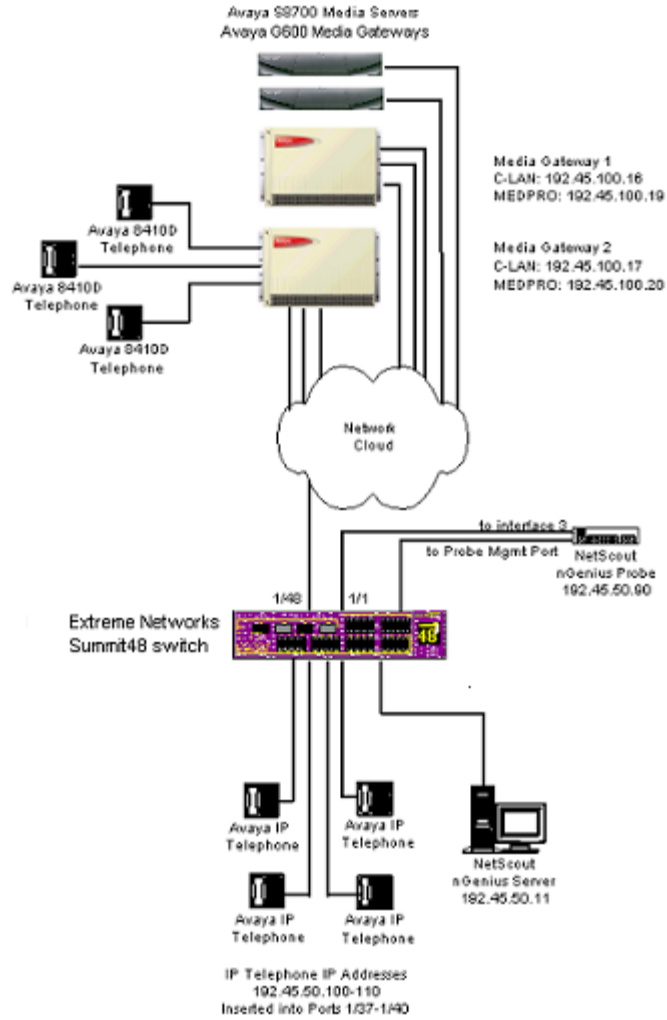
NetScout nGenius provides customers a unified performance management solution. Key performance management disciplines, application and network monitoring, capacity planning, troubleshooting, fault prevention, and service-level management are fully integrated into a single management application, providing a total network view through a browser interface. For customers wanting to monitor their converged infrastructure, nGenius allows the monitoring of the RTP streams associated with IP telephony devices such as telephones and media gateways. In this configuration, the monitoring of RTP streams is done by mirroring the ports associated with the IP telephones to a single port monitored by the nGenius probe. This sample configuration utilizes an Extreme Networks Summit 48 switch, which allows a many-to-one mapping between the source and destination ports. For information on using an Avaya switch, refer to the document “Application Notes for NetScout nGenius with Avaya S8300 Media Server and Avaya G700 Media Gateway”.

As seen in **Figure 1**, Avaya Communication Manager runs on the Avaya S8300 Media Server. In this sample configuration, Avaya IP Telephones, by default, use direct IP-IP connections. The Summit48 is functioning as a Layer 2 switch, where port 1/1 is the mirror port to the probe. Note that a DHCP server and a TFTP server reside on the 192.45.50.0 network to support the IP telephones, but their configurations are not specific to the integration with NetScout. As such, they are not documented.

**Figure 2** shows a similar configuration, where S8700 Media Servers and G600 Media Gateways replace the Avaya S8300 Media Server and G700 Media Gateway.



**Figure 1: Avaya DeveloperConnection Compliance Test Configuration (S8300/G700)**



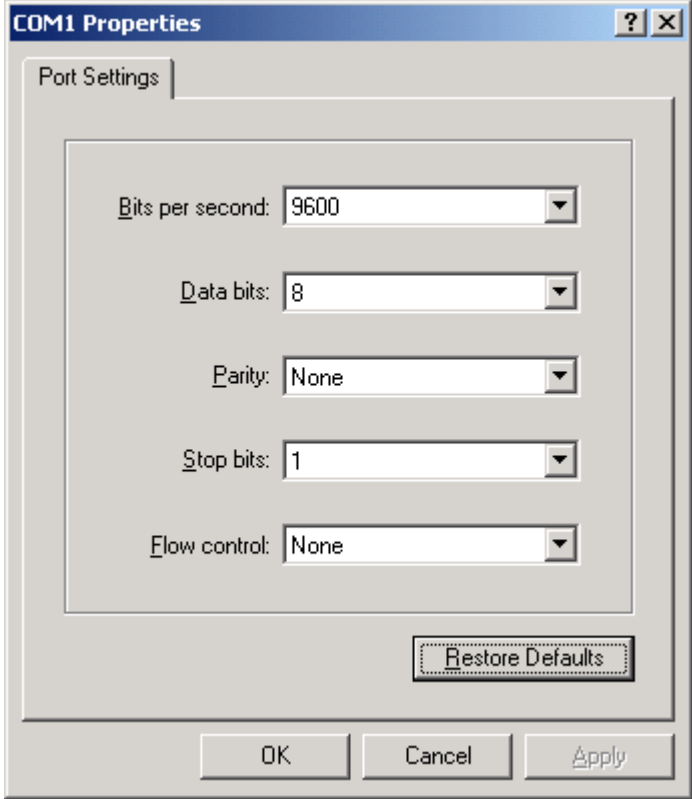
**Figure 2: Avaya DeveloperConnection Compliance Test Configuration (S8700/G600)**

## 2. Equipment and Software Validated

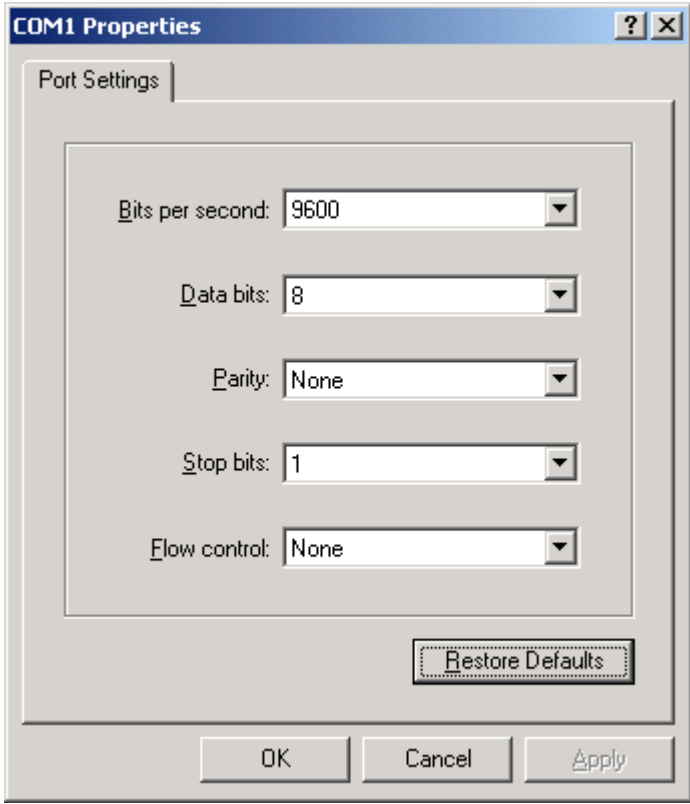
The following equipment and software were used for the sample configuration provided:

<b>Equipment</b>	<b>Software</b>
Avaya S8300 Media Server and Avaya G700 Media Gateway	Avaya Communication Manager 2.0
Avaya S8700 Media Servers and Avaya G600 Media Gateways C-LAN 1 and C-LAN 2: TN799DP  MEDPRO 1 and MEDPRO 2: TN2302AP	Avaya Communication Manager 2.0 C-LAN 1: HW01 FW010 C-LAN 2: HW01 FW008 MEDPRO 1: HW03 FW071 MEDPRO 2: HW03 FW042
Avaya IP Telephones <ul style="list-style-type: none"><li>• Avaya 4606 IP Telephone</li><li>• Avaya 4620 IP Telephone</li><li>• Avaya 4624 IP Telephone</li></ul>	R 1.81
NetScout nGenius Server	Version 2.0.1 Build 1420
NetScout nGenius 8241ET Probe	V6.0.1 (Build 109)
Extreme Networks Summit48	4.1.21 Build 1

### 3. Configure the Extreme Networks Summit48

Step	Description
1.	<p>Connect a console cable to the Summit48. Use Hyperterm with the settings shown below:</p> 
2.	<p>Log in using the appropriate credentials and enter configuration mode. Enter the command <b>“enable mirroring to port 1”</b>.</p>
3.	<p>For each IP telephone connected to the Summit48, add the appropriate port to the mirror pool. In this sample configuration, the following commands are applicable:</p> <pre> <b>configure mirror add port 37</b> <b>configure mirror add port 38</b> <b>configure mirror add port 39</b> <b>configure mirror add port 40</b> </pre>
4.	<p>Exit configuration mode and enter “y” to save the configuration.</p>
5.	<p>Connect port 1/1 to Interface 3 on the NetScout probe.</p>

## 4. Configure the NetScout Probe

Step	Description
1.	<p>Connect a console cable to the NetScout probe console port. Use Hyperterm with the settings shown below:</p>  <p>The screenshot shows a Windows dialog box titled "COM1 Properties" with a "Port Settings" tab selected. The dialog contains five dropdown menus: "Bits per second" set to 9600, "Data bits" set to 8, "Parity" set to None, "Stop bits" set to 1, and "Flow control" set to None. At the bottom right of the dialog is a "Restore Defaults" button. At the very bottom of the dialog are three buttons: "OK", "Cancel", and "Apply".</p>

Step	Description
2.	<p>Once connected, enter <b>1</b> to change the IP address of the probe. When prompted, enter the IP address <b>192.45.50.90</b> and press Enter.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> ***** NetScout Model 8241ET V6.0.1 (Build 109 - Extended H323) *****  Interface number : 3  [1] Change IP Address          192.45.50.90 [2] Change Net Mask           255.255.255.0 [3] Change Default Gateway Address  Not configured [4] Change Config Server Address  Not configured [5] Change Read Community      public [6] Change Write Community     public [7] Select Interface          FAST-ETHERNET [8] Software Options [9] Agent Options [10] Download Firmware [11] Enter Command-line mode [12] Reset Agent [13] Security Options [14] Console Logout  Enter your response or hit Esc to Abort  Selection#: </pre> </div>
3.	<p>Enter <b>3</b> to change the gateway address of the probe. When prompted, enter the IP address <b>192.45.50.1</b> and press Enter.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <pre> ***** NetScout Model 8241ET V6.0.1 (Build 109 - Extended H323) *****  Interface number : 3  [1] Change IP Address          192.45.50.90 [2] Change Net Mask           255.255.255.0 [3] Change Default Gateway Address  192.45.50.1 [4] Change Config Server Address  Not configured [5] Change Read Community      public [6] Change Write Community     public [7] Select Interface          FAST-ETHERNET [8] Software Options [9] Agent Options [10] Download Firmware [11] Enter Command-line mode [12] Reset Agent [13] Security Options [14] Console Logout  Enter your response or hit Esc to Abort  Selection#: </pre> </div>



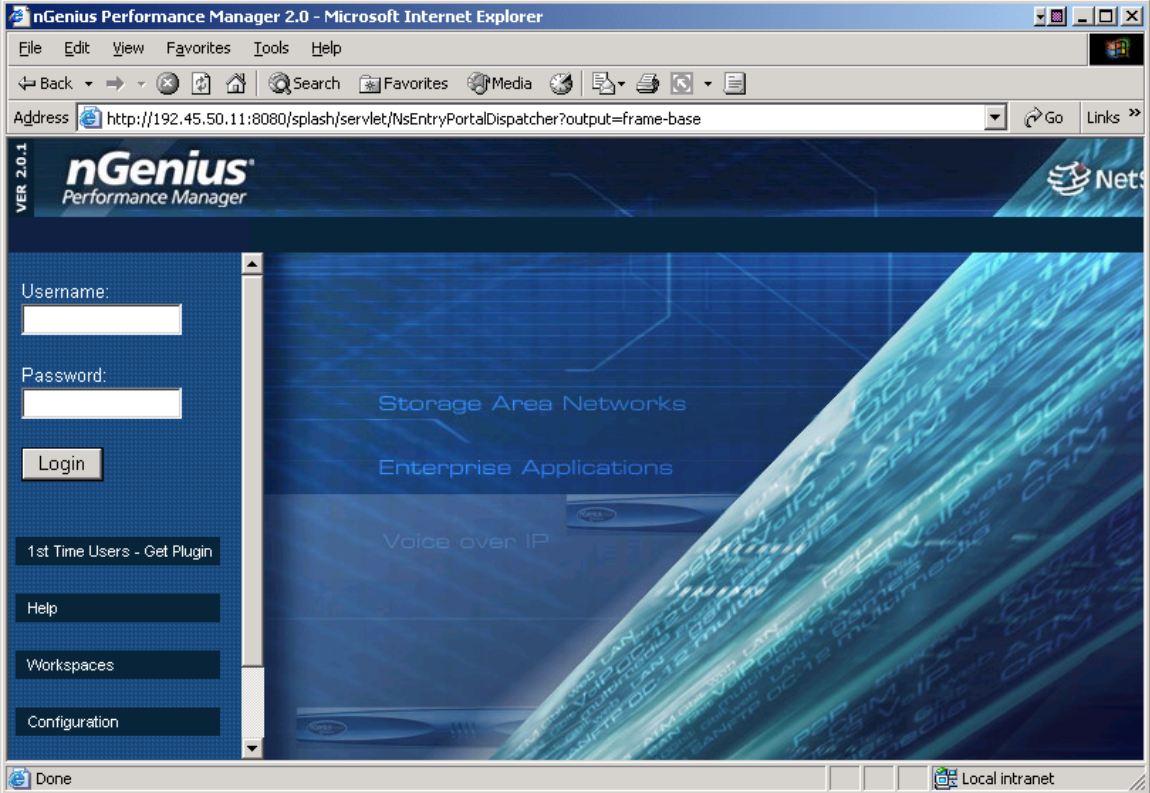
Step	Description
4.	<p>Enter <b>8</b> to change Software Options.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">***** NetScout Model 8241ET V6.0.1 (Build 109 - Extended H323) *****</p> <p>Interface number : 3</p> <p>[1] Change IP Address           192.45.50.90  [2] Change Net Mask            255.255.255.0  [3] Change Default Gateway Address   192.45.50.1  [4] Change Config Server Address   Not configured  [5] Change Read Community       public  [6] Change Write Community       public  [7] Select Interface            FAST-ETHERNET  [8] Software Options  [9] Agent Options  [10] Download Firmware  [11] Enter Command-line mode  [12] Reset Agent  [13] Security Options  [14] Console Logout</p> <p style="text-align: center;">Enter your response or hit Esc to Abort</p> <p>Selection#: 8</p> </div>
5.	<p>At the Software Options Menu, enter <b>1</b> to set Multi-Media Monitor to <b>on</b>. Enter <b>99</b> to return to the main menu.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">***** NetScout Model 8241ET V6.0.1 (Build 109 - Extended H323) *****</p> <p>Software Options Menu:</p> <p>[1] Multi-Media Monitor        on  [2] Response Time Monitor      off  [3] NL and AL Host            off  [4] NL and AL Conversation    off  [6] All Host                    off  [7] All Conversation          off  [8] Tunnel Parsing             off</p> <p>[99] Go Back to Main Menu</p> </div>

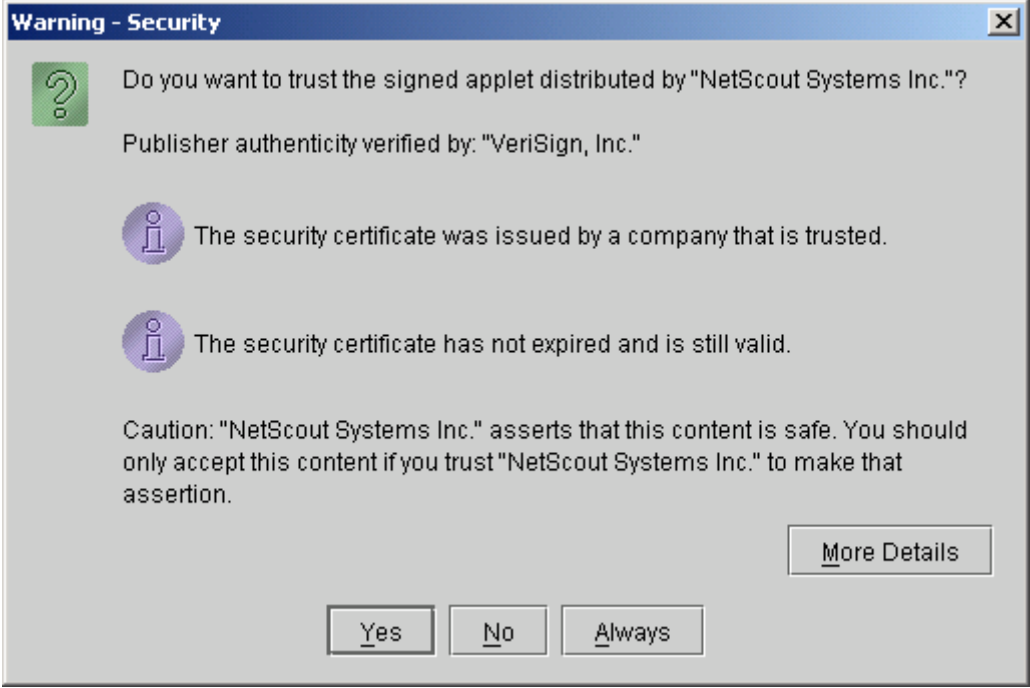
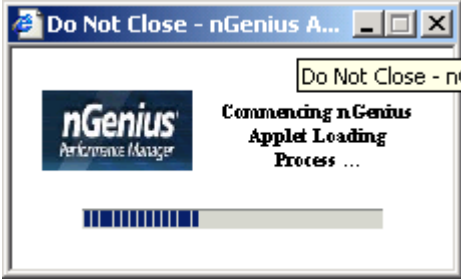
Step	Description
6.	<p>At the main menu, enter <b>11</b> to Enter Command-line mode.</p> <pre> ***** NetScout Model 8241ET V6.0.1 (Build 109 - Extended H323) *****  Interface number : 3  [1] Change IP Address          192.45.50.90 [2] Change Net Mask           255.255.255.0 [3] Change Default Gateway Address 192.45.50.1 [4] Change Config Server Address Not configured [5] Change Read Community     public [6] Change Write Community    public [7] Select Interface          FAST-ETHERNET [8] Software Options [9] Agent Options [10] Download Firmware [11] Enter Command-line mode [12] Reset Agent [13] Security Options [14] Console Logout  Enter your response or hit Esc to Abort  Selection#: 11 </pre>
7.	<p>Type the command <b>get mmon</b> to view the Extended H323 settings.</p> <pre> Enter "quit" to exit command-line mode  % get mmon sccp_port      2000 mgcp_port      2427 sip_port       5060 Extended_H323  off </pre>

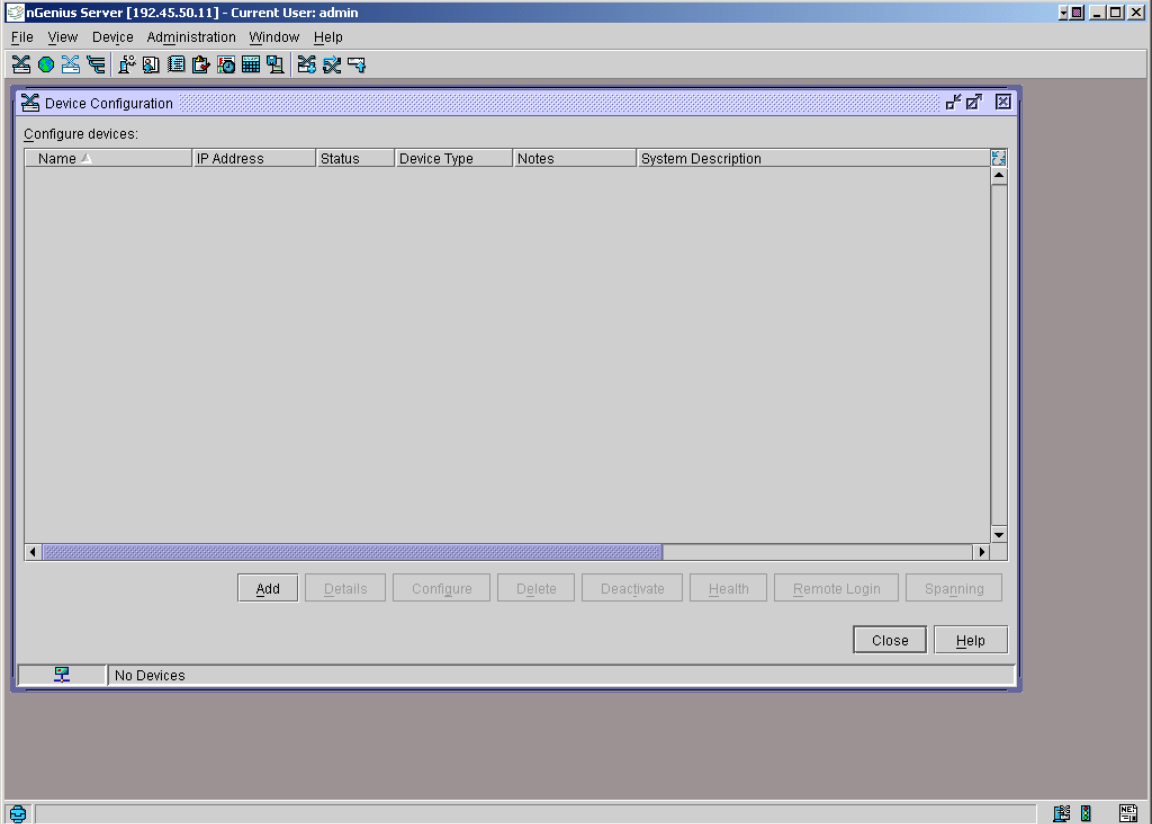
Step	Description
8.	<p>Type the command <b>set mmon Extended_H323 on</b> to set the Extended H323 field. Enter <b>get mmon</b> to verify the modified Extended H323 settings.</p> <div data-bbox="323 384 1422 861" style="border: 1px solid black; padding: 10px;"> <pre> Enter "quit" to exit command-line mode  % get mmon sccp_port      2000 mgcp_port      2427 sip_port       5060 Extended_H323  off  % set mmon Extended_H323 on  % get mmon sccp_port      2000 mgcp_port      2427 sip_port       5060 Extended_H323  on </pre> </div>
9.	<p>Reboot the probe by typing <b>do reset</b>. Enter <b>y</b> and press Enter to confirm.</p> <div data-bbox="323 953 1422 1121" style="border: 1px solid black; padding: 10px;"> <pre> % do reset WARNING : agent will be reset, confirm [n] y </pre> </div>

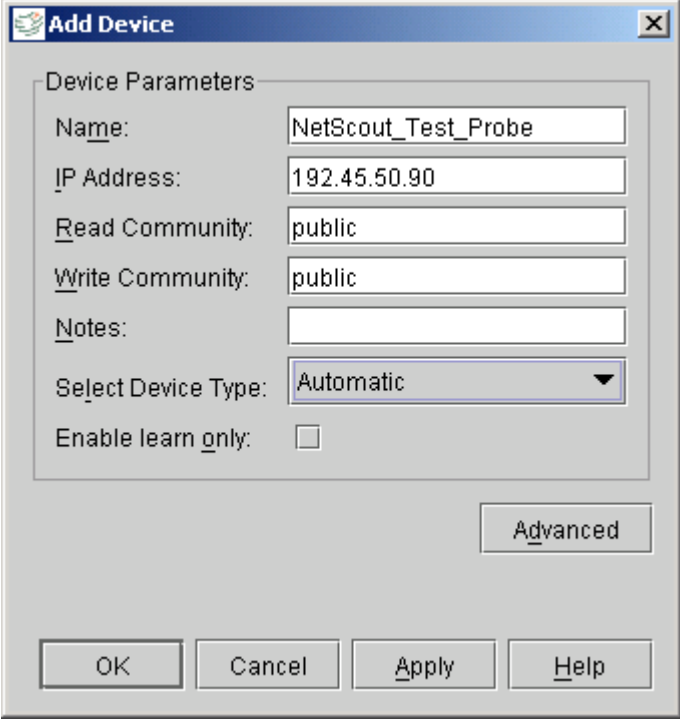
## 5. Configure the NetScout nGenius Server

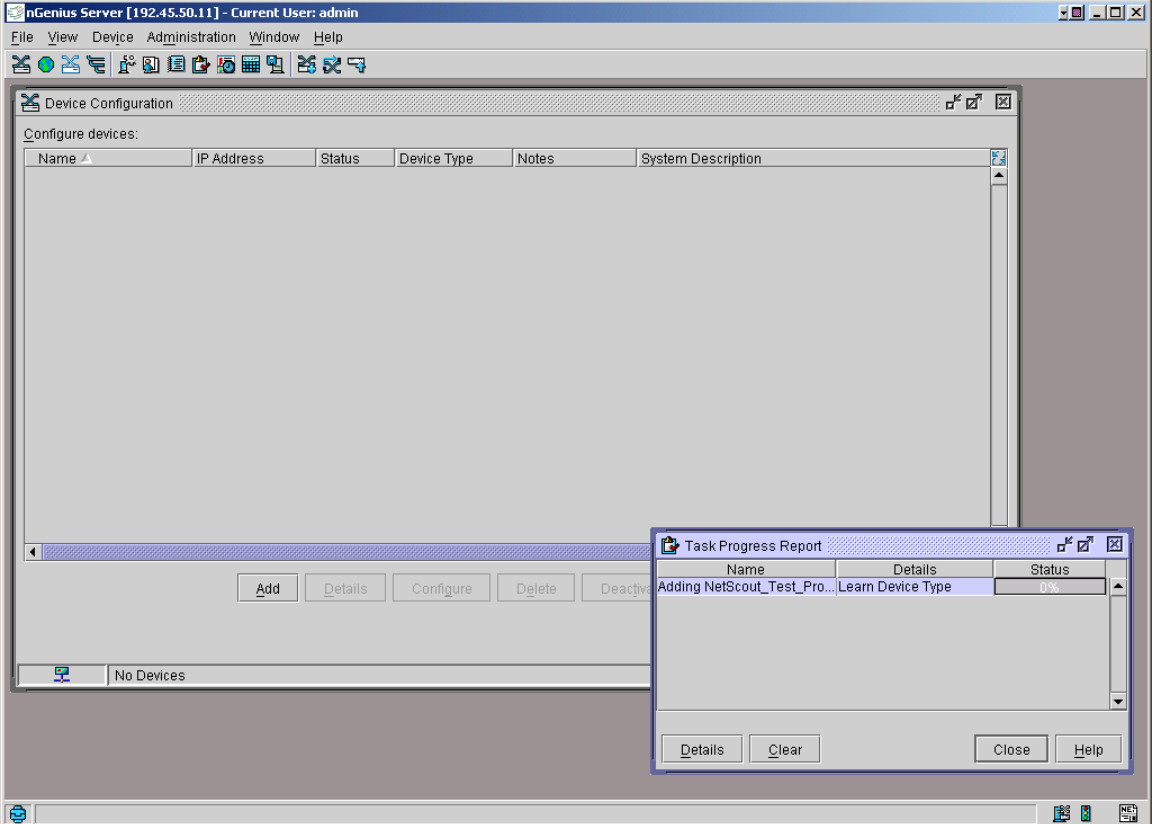
Installation of the NetScout server software is a straightforward task that requires no additional instruction. In some cases, NetScout may ship a pre-installed server to the end customer. As such, the installation process of the server is not documented in these Application Notes. However, the probes must be provisioned on the nGenius server. This is done via the web as shown in the following steps.

Step	Description
1.	<p>Open a browser and enter the IP address of the NetScout nGenius Server, followed by <b>:8080</b> , as shown below.</p> 

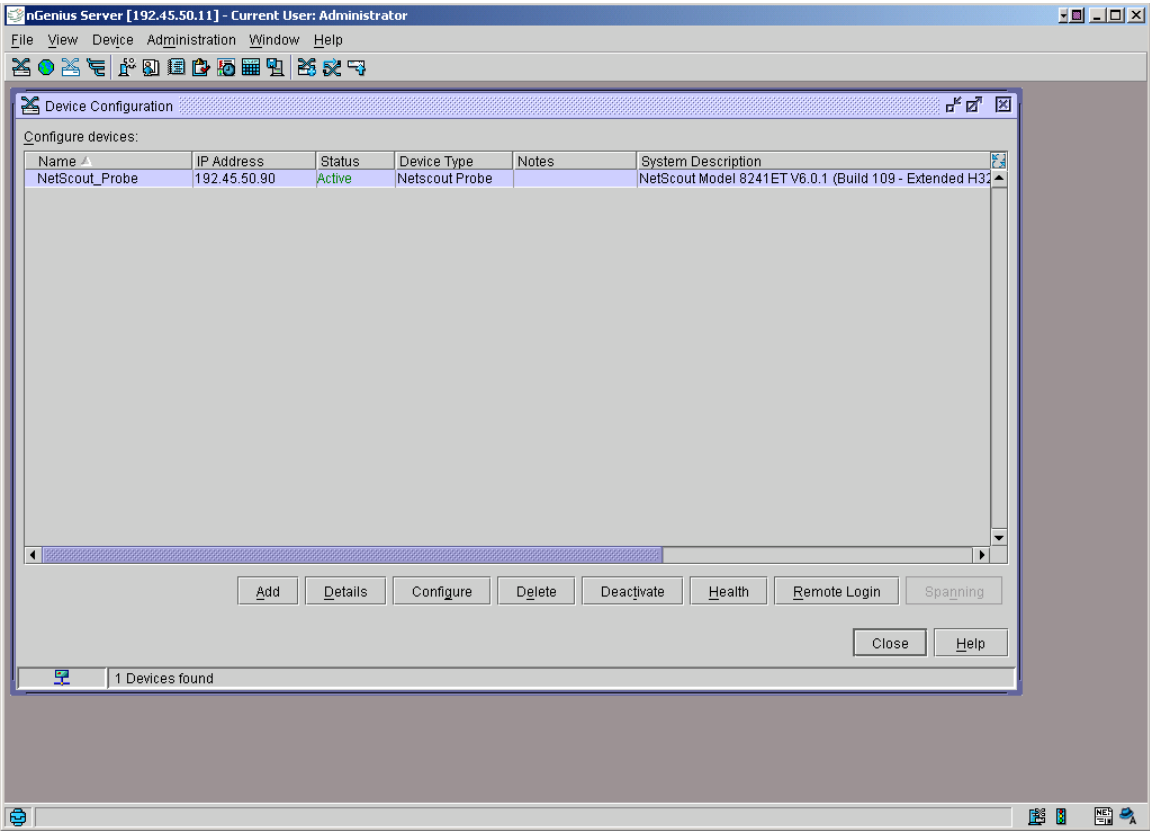
Step	Description
2.	<p>Enter the proper credentials and log into the server. The following dialog box will be displayed. Click <b>Always</b>.</p>  <p>The image shows a Windows-style dialog box titled "Warning - Security". It contains a question mark icon and the text: "Do you want to trust the signed applet distributed by 'NetScout Systems Inc.'? Publisher authenticity verified by: 'VeriSign, Inc.'". Below this are two information icons with text: "The security certificate was issued by a company that is trusted." and "The security certificate has not expired and is still valid." At the bottom, there is a "Caution" message: "Caution: 'NetScout Systems Inc.' asserts that this content is safe. You should only accept this content if you trust 'NetScout Systems Inc.' to make that assertion." and buttons for "Yes", "No", "Always", and "More Details".</p>
3.	<p>The following box will be displayed. At some point, this box will minimize to the task bar and will no longer be seen.</p>  <p>The image shows a dialog box titled "Do Not Close - nGenius A...". It features the nGenius Performance Manager logo and the text: "Commencing nGenius Applet Loading Process ...". A progress bar is visible at the bottom of the dialog box.</p>

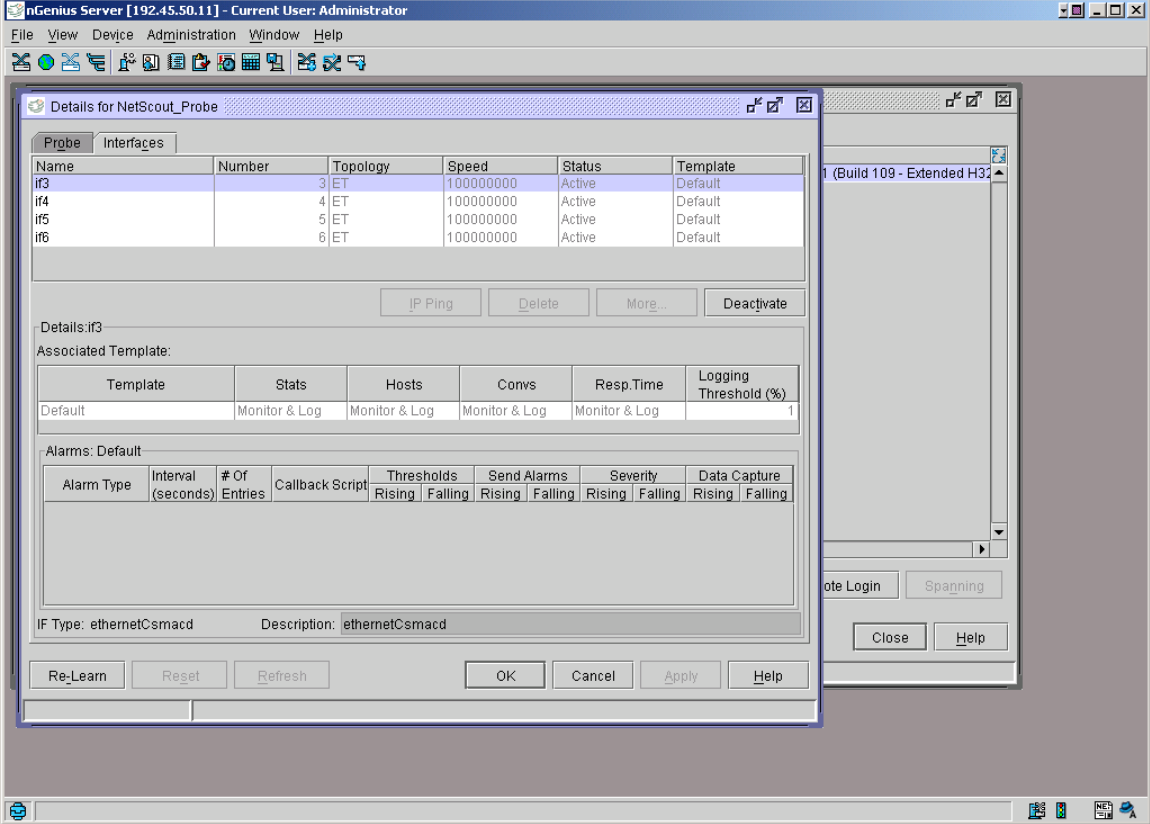
Step	Description
4.	<p>Return to the browser shown in Step 1 and click <b>Server Administration</b>. The following window is displayed. Click <b>Add</b>.</p> 

Step	Description
5.	<p>Enter the name and IP address for the nGenius Probe as shown below (other settings are default). Click <b>Apply</b> and <b>OK</b>.</p> 

Step	Description
6.	<p>The window will display an update as the probe is being added to the system, as shown below. When the status is shown as complete, click <b>Close</b>.</p>  <p>The screenshot shows the nGenius Server application window. The main window has a menu bar (File, View, Device, Administration, Window, Help) and a toolbar. Below the toolbar is a 'Device Configuration' window with a table titled 'Configure devices:'. The table has columns: Name, IP Address, Status, Device Type, Notes, and System Description. Below the table are buttons for 'Add', 'Details', 'Configure', 'Delete', and 'Deactivate'. At the bottom of the main window, it says 'No Devices'. A 'Task Progress Report' dialog box is open in the foreground, showing a table with columns: Name, Details, and Status. The first row is 'Adding NetScout_Test_Pro...' with 'Learn Device Type' in the details and '0%' in the status. The dialog box has buttons for 'Details', 'Clear', 'Close', and 'Help'.</p>



Step	Description												
7.	<p>The probe will now be listed. Highlight the entry and click <b>Details</b>.</p>  <p>The screenshot shows the nGenius Server application window. The title bar reads 'nGenius Server [192.45.50.11] - Current User: Administrator'. The menu bar includes 'File', 'View', 'Device', 'Administration', 'Window', and 'Help'. The main area displays a 'Device Configuration' dialog box. Inside this dialog, there is a table titled 'Configure devices:' with the following data:</p> <table border="1"> <thead> <tr> <th>Name</th> <th>IP Address</th> <th>Status</th> <th>Device Type</th> <th>Notes</th> <th>System Description</th> </tr> </thead> <tbody> <tr> <td>NetScout_Probe</td> <td>192.45.50.90</td> <td>Active</td> <td>Netscout Probe</td> <td></td> <td>NetScout Model 8241ET V6.0.1 (Build 109 - Extended H32)</td> </tr> </tbody> </table> <p>Below the table, there are several buttons: 'Add', 'Details', 'Configure', 'Delete', 'Deactivate', 'Health', 'Remote Login', 'Spanning', 'Close', and 'Help'. At the bottom of the dialog, a status bar indicates '1 Devices found'.</p>	Name	IP Address	Status	Device Type	Notes	System Description	NetScout_Probe	192.45.50.90	Active	Netscout Probe		NetScout Model 8241ET V6.0.1 (Build 109 - Extended H32)
Name	IP Address	Status	Device Type	Notes	System Description								
NetScout_Probe	192.45.50.90	Active	Netscout Probe		NetScout Model 8241ET V6.0.1 (Build 109 - Extended H32)								

Step	Description
8.	<p>Verify the interfaces listed for the probe. Click <b>Re-learn</b> to complete loading the configuration. When complete, click <b>OK</b>.</p> 

## 6. Configure Avaya Communication Manager

Basic administration, such as initial provisioning of the media server and the adding of IP telephones, is assumed and is therefore beyond the scope of these Application Notes.

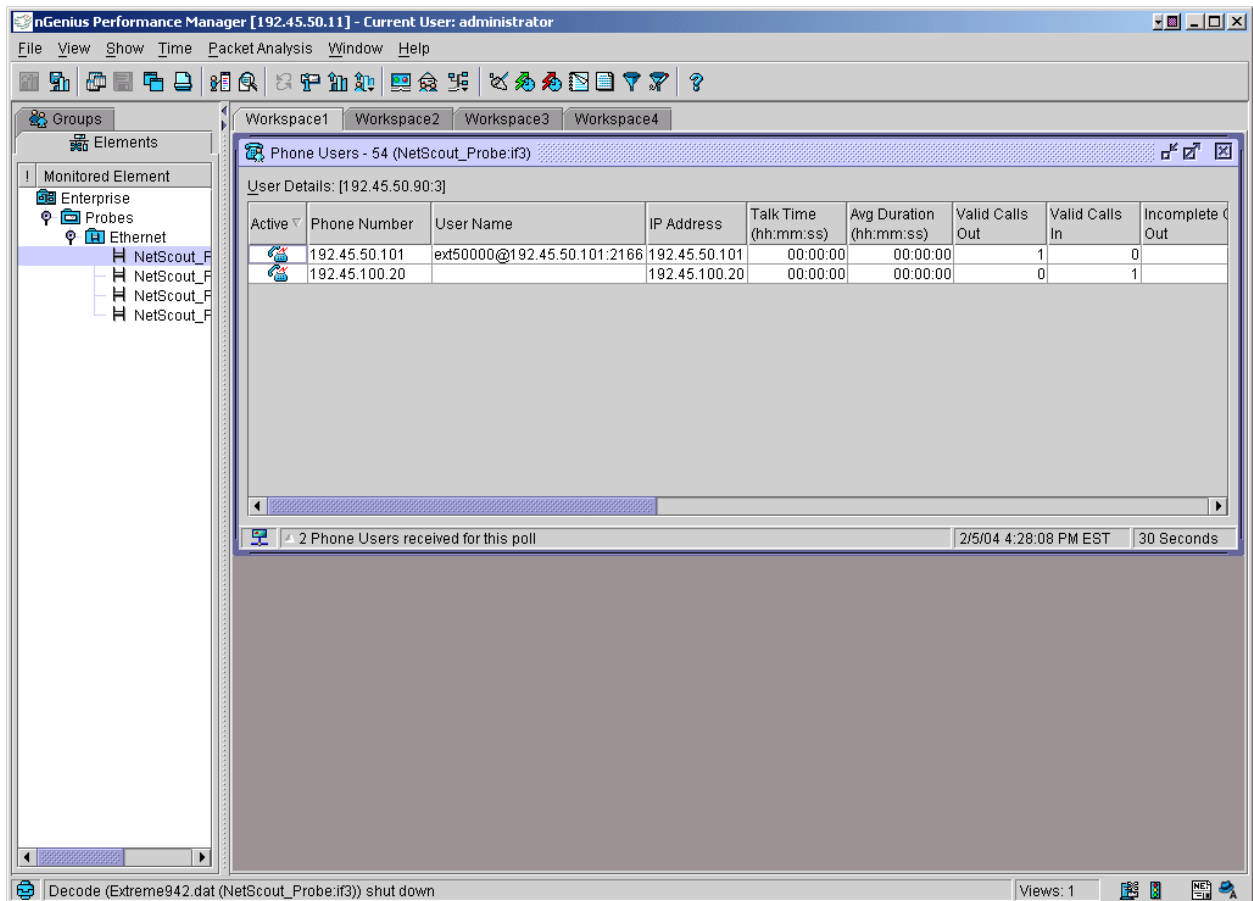
## 7. Interoperability Compliance Testing

Interoperability compliance tests included feature, functionality, and performance testing. Feature and functionality testing examined the nGenius client's ability to monitor IP telephone features such as making, receiving, transferring, and conferencing calls. Feature and functionality testing was verified using manual methods. Performance testing was conducted using a bulk call generator to place calls to IP telephones and verifying the results shown by the nGenius client.

## 8. Verification Steps

This configuration was verified in a test environment with the use of network tools. In the field, the following verification steps can be performed to test interoperability at stages where incorrect configuration is most likely.

- a) Network Connectivity – Ping between the media server and the nGenius server, from the nGenius server to the nGenius Probe, and from the nGenius server to the IP Telephone.
- b) Telephony Connectivity: Station – Place calls to and from the IP Telephone. Verify that the calls are shown by the nGenius Client. A sample screen is shown below, indicating an active call between an IP telephone and an Avaya 8410D telephone via the Avaya G600 Media Gateway MEDPRO card (see **Figure 2**).



## 9. Support

Technical support at NetScout can be reached at 1-888-357-7667. Alternatively, they can be reached by sending email to [support@netscout.com](mailto:support@netscout.com).

## 10. Conclusion

These Application Notes describe the configuration steps required to configure NetScout nGenius and Avaya Communication Manager to successfully interoperate. Features and functionality were tested, and performance testing was conducted to validate the solution. Note that for the S8700/G600 configuration, nGenius communicates with the C-LAN and MEDPRO circuit packs. This solution may be extended to any media gateway containing C-LAN and MEDPRO circuit packs. Hardware and firmware versions of these circuit packs are provided in Section 2 as a baseline reference for extending the tested solution to other topologies.

## 11. Additional References

The following documents may be used for more information:

- “Application Notes for NetScout nGenius with Avaya S8300 Media Server and Avaya G700 Media Gateway”, available at <http://www1.avaya.com/enterprise/resourcelibrary/applicationnotes/devconnect.html>
- Administration for Network Connectivity for Avaya MultiVantage Software – Document ID 555-233-504, available at <http://support.avaya.com>.
- Administrators Guide for Avaya MultiVantage Software – Document ID 555-233-506, available at <http://support.avaya.com>.
- NetScout nGenius Probe Agent Administrator Guide
- NetScout Probe Hardware Guide

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