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NETSCOUT SYSTEMS, INC.
GPL Source Code Request
310 Littleton Road
Westford, MA 01886
Attn: Legal Department
Contacting NETSCOUT SYSTEMS, INC.

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The best way to contact Customer Support is to submit a Support Request:
https://my.netscout.com/mcp/Pages/Landing.aspx

Telephone: In the US, call 888-357-7667; outside the US, call 001 978-614-4000. Phone support hours are 8 a.m. to 8 p.m. Eastern Standard Time (EST).

E-mail: support@netscout.com

When you contact Customer Support, the following information can be helpful in diagnosing and solving problems:
— Type of network platform
— Software and firmware versions
— Hardware model number
— License number and your organization's name
— The text of any error messages
— Supporting screen images, logs, and error files, as appropriate
— A detailed description of the problem

Sales
Call 800-357-7666 for the sales office nearest your location.

Education and Training
Education and training resources including course listings, product certification, webinars, and case studies are available at:
http://www.netscout.com/education/overview/

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http://www.netscoutuserforum.com/
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This document describes how to get started with the NETSCOUT Application Performance Management solution for Microsoft Azure. See the following sections for details:

- "Introducing NETSCOUT Application Performance Management for Microsoft Azure" on page 8
- "System Requirements – Microsoft Azure" on page 10
- "Deployment Summary" on page 11
- "Obtaining Licensing Information" on page 12
- "Deploying vSCOUT from Virtual nGeniusONE" on page 27
- "License Information" on page 28
- "About vSCOUT Modes (Standard or Advanced)" on page 29
- "Virtual nGeniusONE Deployment Notes" on page 30

**Additional Resources**

NETSCOUT® Systems strongly recommends that you read this document in its entirety, as well as the most recent versions of the following additional documentation available online at My.NETSCOUT:

- vSCOUT Installation Guide
- Virtual nGeniusONE Installation Guide
- vSTREAM Installation Guide
- Agent Administrator Guide for CDM/ASI
- nGeniusONE documentation and Online Help

**Note:** For the most current and comprehensive information, visit the NETSCOUT Technical Support knowledge base at the following URL: https://my.netscout.com/pages/mcplanding.aspx. This site contains related documents, tips, FAQs, and suggested workarounds. You can also download updated copies of product documentation from this site.
Introducing NETSCOUT Application Performance Management for Microsoft Azure

The NETSCOUT Application Performance Management solution for Azure provides end-to-end visibility on application workloads and their dependencies on compute, network, and storage infrastructure in hybrid cloud environments.

Use the NETSCOUT Application Performance Management solution for Azure to:

- Migrate application workloads to Azure cloud with confidence.
- Assure the performance of the application in Azure cloud and hybrid environments.
- Deliver a consistent and high quality user experience before, during and after cloud migration.

Figure 1 illustrates a sample hybrid deployment with a physical nGeniusONE server operating as a Distributed Global Manager in the data center. The nGeniusONE server manages two Virtual nGeniusONE servers deployed in the public cloud together with their associated vSCOUT and vSTREAM instances, minimizing public cloud throughput charges.

Figure 1  NETSCOUT Application Performance Management for Azure
Solution Components

The NETSCOUT Application Performance Management solution for Azure consists of the Virtual nGeniusONE console, vSTREAM virtual appliances, and vSCOUT agents, working together to deliver an overarching view into the performance of all infrastructure and application components across geographically dispersed data centers and cloud (Figure 2).

![Diagram of Azure - UK South Region with Virtual nGeniusONE, vSTREAM, and vSCOUT agents]

**Figure 2 Detailed View of NETSCOUT Application Performance Management for Azure Components**

The table below summarizes the role of each of the components in the NETSCOUT Application Management Performance solution for Azure:

<table>
<thead>
<tr>
<th>vSCOUT</th>
<th>vSTREAM</th>
</tr>
</thead>
</table>
| • Installers for Linux and Windows bundled with Virtual nGeniusONE Azure Virtual Machine Image (VMI).  
• Install vSCOUT agent on same virtual machine as target monitored applications in the cloud.  
• The data source for Azure cloud visibility in the NETSCOUT Application Performance Management solution for Azure:  
• Reports on key performance indicators.  
• Provides access to packet-level data by forwarding packets to vSTREAM.  
• Optimized for ASI visibility with minimal footprint.  
• Manage with Virtual nGeniusONE. | • Deploy as a virtual appliance in Azure together with Virtual nGeniusONE using NETSCOUT’s configurable Azure Resource Manager templates and ready-made VMI.  
• Scalable provisioning depending on virtual machine size selected during deployment.  
• SR-IOV enabled by default on capture interface to optimize performance.  
• Receives traffic forwarded from multiple vSCOUT agents for full ASI analysis and packet decodes.  
• Manage and visualize received data with Virtual nGeniusONE. |
Virtual nGeniusONE

- Delivers overarching view into the performance of all infrastructure and application components associated with delivering IP-based services.
- Deploys as a virtual appliance using NETSCOUT’s configurable Azure Resource Manager template and ready-made VMI.
- Provides seamless management of vSCOUT, vSTREAM, and InfiniStream appliances.
- Integrate with Distributed Global Manager in data center for end-to-end visibility.

System Requirements – Microsoft Azure

Table 1 summarizes the necessary requirements to deploy the NETSCOUT Application Performance Management solution for Microsoft Azure:

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microsoft Azure Account</td>
<td>You must have an active Microsoft Azure account to deploy the NETSCOUT Application Performance Management solution in an Azure environment.</td>
</tr>
<tr>
<td>Microsoft Azure Permissions</td>
<td>The user performing the deployment of the NETSCOUT Application Performance Management solution must have either Owner or Contributor access to the subscription used for the deployment. These are both built-in Azure roles.</td>
</tr>
<tr>
<td>Static Private IP Address &amp; License Information</td>
<td>The NETSCOUT Application Performance Management solution is provided on the Azure Marketplace as a “bring your own license” (BYOL) solution. You will need a static private IP address for Virtual nGeniusONE in order to complete the product registration procedure and obtain the <strong>Serial Number</strong> and <strong>Password</strong> to be entered in the Azure Resource Manager templates and deploy the VMIs from the Azure Marketplace. Refer to “Obtaining Licensing Information” on page 12 for details.</td>
</tr>
<tr>
<td>Virtual Network</td>
<td>You can either use an existing virtual network or choose to create one during the deployment of the NETSCOUT Application Performance Management solution, together with the necessary management and monitoring subnets.</td>
</tr>
</tbody>
</table>
Deployment Summary

Deploying the NETSCOUT Application Performance Management solution for Microsoft Azure consists of the following major steps:

1. Work with your NETSCOUT Sales Representative to obtain the necessary licensing information for both Virtual nGeniusONE and vSTREAM. You will need to have a static private IP address for Virtual nGeniusONE in order to obtain the Serial Number and Password from the NETSCOUT registration site to enter in the Azure Resource Manager Templates as part of the deployment for both products.

   **Note:** No license information is required for vSCOUT installations. vSCOUT agents consume Type 1 interface licenses in nGeniusONE at different rates depending on whether they are operating in Advanced or standard mode. Refer to "About vSCOUT Modes (Standard or Advanced)" on page 29 for details.

2. Connect to the NETSCOUT site on Azure Marketplace and click the **GET IT NOW** button.

3. Select the type of **Software plan** you want to deploy. You can choose from the following options:
   - **Virtual nGeniusONE** (includes installers for vSCOUT as part of installation)
   - **vSTREAM Virtual Appliance and Virtual nGeniusONE** (vSCOUT installers included with Virtual nGeniusONE)
   - **vSTREAM Virtual Appliance**

4. Install the components of the NETSCOUT Application Performance Management solution in the following order:
   - **Virtual nGeniusONE** (either by itself or together with vSTREAM using the combined template)
   - **vSTREAM**. Depending on the number of vSCOUT agents from which you expect to forward traffic, you may want to install multiple vSTREAM virtual appliances. By default, each monitoring interface in a vSTREAM can accept a maximum of five vSCOUT tunnels.
   - **vSCOUT**. The installers for vSCOUT are bundled with the Virtual nGeniusONE VMI. You can copy them to a target virtual machine from Virtual nGeniusONE and install them using the standard installation procedure described in "Deploying vSCOUT from Virtual nGeniusONE" on page 27.

5. Ensure that both vSTREAM and vSCOUT instances are communicating properly with nGeniusONE:
   - When you deploy vSTREAM in Azure, you enter the IP address of the managing Virtual nGeniusONE server as part of the deployment procedure. This lets vSTREAM add itself to nGeniusONE automatically immediately upon boot up.
   - When you install vSCOUT on a target VMI, you can either configure the IP address of the managing Virtual nGeniusONE server prior to installation or add the vSCOUT manually after installation (both approaches are described in the vSCOUT Installation Guide).

If for some reason an instance is not communicating properly with Virtual nGeniusONE, log in to the command line of the vSCOUT/vSTREAM agent, run the Agent Configuration utility, and make sure that the Virtual nGeniusONE IP address is specified under **[4] Change Config Server Address**.
Configure Traffic Forwarding from vSCOUT sources to vSTREAM destinations using Device Configuration in Virtual nGeniusONE. Refer to the vSCOUT Installation Guide and the Virtual nGeniusONE online help for details.

**Note:** vSCOUT agents provide the data gathering engine for the NETSCOUT Application Performance Management solution. However, because they are lightweight by design, they do not provide all of the functionality that vSTREAM does. For full ASI analysis and in-depth packet-level analysis, you must forward data from vSCOUT sources to vSTREAM.

---

# Obtaining Licensing Information

Use the following procedure to obtain the **Serial Numbers** and **Passwords** from the NETSCOUT registration site to enter in the Azure Resource Manager Templates as part of the deployment for both Virtual nGeniusONE and vSTREAM:

1. When you purchase Virtual nGeniusONE or vSTREAM, you receive a registration form that includes a registration key. Locate this form.
2. Open a web browser and navigate to [https://my.netscout.com/mcp/Pages/default.aspx](https://my.netscout.com/mcp/Pages/default.aspx).
3. Navigate to **Licensing & Downloads** and follow the instructions there to enter your registration key. You will also enter an IP address:
   - If you are licensing Virtual nGeniusONE, you enter the static, private IP address to be used for Virtual nGeniusONE in the Azure public cloud.
   - If you are licensing vSTREAM, you enter the IP address of its managing Virtual nGeniusONE server.
4. When you complete the registration procedure, you receive both a serial number and a password (license key). Print the screen that contains this information. You will enter these values in the Azure Resource Manager templates when you deploy the Virtual nGeniusONE VMI.
Deploying NETSCOUT Components

This section describes how to deploy NETSCOUT Application Performance Management solution components using the Azure Resource Manager templates and images available in the NETSCOUT site on the Azure Marketplace:

1. Navigate to the NETSCOUT site in Azure Marketplace.
2. Click the **GET IT NOW** button.

   The **Create this app in Azure** dialog box appears (**Figure 3**).

3. Select the **Software plan** you want to deploy (**Figure 3**). You can choose from the following options:

   ![Figure 3  Selecting the NETSCOUT Application Performance Management Component for Installation](image)

   **Table 2  ARM Templates for NETSCOUT Application Performance Management Solution**

<table>
<thead>
<tr>
<th>Software Plan</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual nGeniusONE</td>
<td>Installs the VMI for a Virtual nGeniusONE server. Includes installers for vSCOUT as part of installation.</td>
</tr>
<tr>
<td>vSTREAM Virtual Appliance and Virtual nGeniusONE</td>
<td>Installs the VMIs for both Virtual nGeniusONE and vSTREAM. The vSTREAM is automatically associated with the managing Virtual nGeniusONE server. vSCOUT installers are included with the Virtual nGeniusONE installation.</td>
</tr>
<tr>
<td>vSTREAM Virtual Appliance</td>
<td>Installs the VMI for a vSTREAM virtual appliance. As part of the ARM template, you specify the IP address of the managing Virtual nGeniusONE server so that it can be automatically added to the server during instantiation.</td>
</tr>
</tbody>
</table>

4. Once you have selected the Software plan, click the **Continue** button to begin deployment.
You are taken to the NETSCOUT Application Performance Management, Azure deployment wizard to complete the process (Figure 4):

**Figure 4  Starting the Deployment Process**

5. If you have not yet logged in to Microsoft Azure, you are prompted to do so. Log in to an Azure account with access to the resources you want to monitor with the NETSCOUT Application Performance Management solution.

6. If you have not yet accepted the terms for the NETSCOUT Application Performance Management solution, you are prompted to do so.
Once you have logged in and accepted terms, your Azure Dashboard displays a summary of the components you are about to deploy. Figure 5 shows an example of the summary for the combined vSTREAM Virtual Appliance and Virtual nGeniusONE deployment.

Figure 5  Summary Screen for NETSCOUT Application Performance Management Deployment

7 Click the Create... button to begin configuration of the selected NETSCOUT Application Performance Management solution components.

The Create... wizard begins, allowing you to configure parameters for the selected components (Figure 6).
**Note:** The actual name of the wizard, as well as its steps, change depending on the components you selected for installation; the example in Figure 6 shows the wizard for the combined vSTREAM and Virtual nGeniusONE template. The procedure below indicates which steps are for which specific NETSCOUT Application Performance Management solution components.

Figure 6 Configuring Basics for the Deployment

8 Set the **Basics** page options listed and described in Table 3 and click **OK** to continue.

**Table 3 Configuration Parameters in Basics Page**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authentication type</td>
<td>Choose one of the following authentication types for the virtual machine(s):</td>
</tr>
<tr>
<td></td>
<td>• Password</td>
</tr>
<tr>
<td></td>
<td>• SSH public key</td>
</tr>
<tr>
<td></td>
<td>Depending on the authentication type selected, different fields are available in which you can supply either a password or SSH public key, as described below.</td>
</tr>
<tr>
<td></td>
<td><strong>Password / Confirm Password</strong></td>
</tr>
<tr>
<td></td>
<td>If you choose Password as the authentication type for the virtual machine, you use these fields to supply and confirm the password used for access to the virtual machine. Passwords must have at least three of the following:</td>
</tr>
<tr>
<td></td>
<td>• One lower case character</td>
</tr>
<tr>
<td></td>
<td>• One upper case character</td>
</tr>
<tr>
<td></td>
<td>• One number</td>
</tr>
<tr>
<td></td>
<td>• One special characters that is not \ or -</td>
</tr>
</tbody>
</table>
Once you click **OK** on the **Basics** page, the **Virtual Machine Settings** page appears (Figure 7).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SSH public key</strong></td>
<td>If you choose <strong>SSH public key</strong> as the authentication type for the virtual machine, you use this field to supply the SSH public key used for access to the virtual machine.</td>
</tr>
<tr>
<td><strong>Subscription</strong></td>
<td>Select the Microsoft Azure subscription in which you would like to deploy the selected NETSCOUT Application Performance Management solution components. The dropdown lists all subscriptions associated with the currently logged in Azure account.</td>
</tr>
<tr>
<td><strong>Resource group</strong></td>
<td>Select the Resource Group to contain the various resources associated with the deployed NETSCOUT components – virtual machines, virtual hard disks, virtual network adapters, public IP addresses, and so on. You can either select an existing Resource Group from the dropdown (so long as it is empty) or use the <strong>Create new</strong> link to create a new one. The dropdown lists all currently defined Resource Groups associated with the currently logged in Azure account. Using a separate Resource Group for each deployment can ease lifecycle management, making it easy to remove all resources associated with a given deployment in one action.</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>Select an Azure region to be used for the deployment from the dropdown list. The list includes the regions accessible from your account.</td>
</tr>
</tbody>
</table>

![Figure 7 Configuring Virtual Machine Settings for the Deployment](image)
Set the **Virtual Machine Settings** page options listed and described in **Table 4** and click **OK** to continue.

**Note:** The options in the **Virtual Machine Settings** page are different depending on which NETSCOUT Application Performance Management software plan you are deploying (vSTREAM solo, Virtual nGeniusONE solo, or vSTREAM/Virtual nGeniusONE combined).

**Table 4  Configuration Parameters in Virtual Machine Settings Page**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Network Settings</strong></td>
<td>You set these options for all NETSCOUT Application Performance Management software plans.</td>
</tr>
<tr>
<td><strong>Virtual network</strong></td>
<td>Use the <strong>Choose virtual network</strong> options to select an existing network where you would like the NETSCOUT Application Performance Management components to be deployed, or, alternatively, create a new virtual network for the components.</td>
</tr>
<tr>
<td></td>
<td>In most cases, you will deploy NETSCOUT resources into an existing network whose traffic you want to monitor and analyze. However, you can also use the <strong>Create new</strong> options to add a new virtual network, complete with a name and an IP address space (for example, 10.0.0.0/16). If you do create a new network, make sure you click the <strong>OK</strong> button in the <strong>Create virtual network</strong> panel to select it for use.</td>
</tr>
<tr>
<td></td>
<td>Note that if you are deploying Virtual nGeniusONE and vSTREAM together, both VMIs are deployed in the same virtual network.</td>
</tr>
<tr>
<td><strong>Subnets</strong></td>
<td>Use the dropdown lists to select separate <strong>Management</strong> and <strong>Capture</strong> (vSTREAM only) subnets. The dropdowns list the subnets already provisioned for your account</td>
</tr>
<tr>
<td></td>
<td>• The <strong>Management</strong> subnet is used for administrative traffic between Virtual nGeniusONE and managed vSTREAM/vSCOUT devices.</td>
</tr>
<tr>
<td></td>
<td>• If you are deploying Virtual nGeniusONE and vSTREAM together, the subnet selected here is used for the Management port on both instances.</td>
</tr>
<tr>
<td></td>
<td>• The <strong>Capture</strong> subnet is where the vSTREAM monitoring interface will generate statistics and capture packets. You only specify a Capture subnet for software plans that include vSTREAM.</td>
</tr>
<tr>
<td></td>
<td>You cannot specify the same subnet for <strong>Management</strong> and <strong>Capture</strong>. In general, it's a good practice to keep management traffic separate from the capture subnet. This way, you aren't adding additional traffic to the monitored subnet and you also have a means of contacting a managed vSTREAM/vSCOUT if its capture subnet goes down.</td>
</tr>
<tr>
<td></td>
<td>If you created a virtual network from scratch as part of the wizard, you can also create new subnets for management and capture as part of this step in the wizard.</td>
</tr>
</tbody>
</table>
Virtual nGeniusONE Settings

You set these options for software plans that include Virtual nGeniusONE.

**vnG1 Machine Size**

Click the vnG1 machine size option and select a Machine Size for the Virtual nGeniusONE deployment from the list that appears in the adjacent panel. Click Select when you have finished.

**Note:** Make sure you choose one of the Machine Sizes with a star in the RECOMMENDED column, as shown below. These are the only supported Machine Sizes for Virtual nGeniusONE. If you select a different Machine Size, the deployment will not be successful during validation.

Each Machine Size provides a different combination of computing resources (CPU, memory, storage, and networking). You can select from the following supported Machine Sizes for Virtual nGeniusONE:

- DS4_v2
- DS5_v2


**Public IP Address for the vnG1**

Click the Public IP Address for the vnG1 option and either select an existing public IP address that's available in the selected subscription and location or use the options in the adjacent Create public IP address panel to create a new one.

If you elect to create a new public IP address, set the following options in the Create public IP address panel and click OK to create the resource:

- **Name** – Supply a name for the public IP address resource.
- **SKU** – Specify whether to create a Basic or Standard Public IP address. Refer to the Azure documentation for details
- **Assignment** – Specify whether to use a Dynamic or Static public IP address.
  
  **Note:** Dynamic addresses may change when the virtual appliance is restarted.

Assigning a public IP address lets you access the virtual machine from the internet.

**DNS Prefix for the public IP address**

Supply a globally unique DNS prefix for the public IP address created in the previous step.

**Note:** The DNS Prefix does not change across appliance restarts, even when using a Dynamic public IP address.

The wizard automatically supplies a globally unique DNS prefix in the format vng1-xxxxxxxxxxxxxx. You can either accept the default prefix or create your own so long as it is globally unique.

---

**Table 4 Configuration Parameters in Virtual Machine Settings Page**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virtual nGeniusONE</td>
<td>You set these options for software plans that include Virtual nGeniusONE.</td>
</tr>
</tbody>
</table>
| vnG1 Machine Size       | Click the vnG1 machine size option and select a Machine Size for the Virtual nGeniusONE deployment from the list that appears in the adjacent panel. Click Select when you have finished. **Note:** Make sure you choose one of the Machine Sizes with a star in the RECOMMENDED column, as shown below. These are the only supported Machine Sizes for Virtual nGeniusONE. If you select a different Machine Size, the deployment will not be successful during validation. Each Machine Size provides a different combination of computing resources (CPU, memory, storage, and networking). You can select from the following supported Machine Sizes for Virtual nGeniusONE:
  - DS4_v2
  - DS5_v2
| Public IP Address for the vnG1 | Click the Public IP Address for the vnG1 option and either select an existing public IP address that's available in the selected subscription and location or use the options in the adjacent Create public IP address panel to create a new one. If you elect to create a new public IP address, set the following options in the Create public IP address panel and click OK to create the resource:
  - **Name** – Supply a name for the public IP address resource.
  - **SKU** – Specify whether to create a Basic or Standard Public IP address. Refer to the Azure documentation for details
  - **Assignment** – Specify whether to use a Dynamic or Static public IP address.
    **Note:** Dynamic addresses may change when the virtual appliance is restarted.
  Assigning a public IP address lets you access the virtual machine from the internet. |
| DNS Prefix for the public IP address | Supply a globally unique DNS prefix for the public IP address created in the previous step. **Note:** The DNS Prefix does not change across appliance restarts, even when using a Dynamic public IP address. The wizard automatically supplies a globally unique DNS prefix in the format vng1-xxxxxxxxxxxxxx. You can either accept the default prefix or create your own so long as it is globally unique. |
supply a static, private IP address in the management subnet specified in the Subnets option, above. The address you specify must match the IP address you used to register Virtual nGeniusONE on the NETSCOUT MasterCare Portal.

Note: The ARM template only supports IPv4 addresses.

dbONE Volume Size

Specify the volume size of the dbONE database. The dbONE database stores data from ASI tables collected by managed vSTREAM and vSCOUT agents and is used to support nGeniusONE analysis modules. The default is 1000 GB.

vSTREAM Settings

You set these options for software plans that include vSTREAM.

vSTREAM Machine Size

Click the vSTREAM machine size option and select a Machine Size for the vSTREAM deployment from the list that appears in the adjacent panel. Click Select when you have finished.

Note: Make sure you choose one of the Machine Sizes with a star in the RECOMMENDED column. These are the only supported Machine Sizes for vSTREAM. If you select a different Machine Size, the deployment will fail in the final step.

Each Machine Size provides a different combination of computing resources (CPU, memory, storage, and networking). You can select from the following supported Machine Sizes for vSTREAM:

- DS4_v2
- DS5_v2


Public IP Address for the vSTREAM

Click the Public IP Address for the vSTREAM option and either select an existing public IP address that's available in the selected subscription and location or use the options in the adjacent Create public IP address panel to create a new one.

If you elect to create a new public IP address, set the following options in the Create public IP address panel and click OK to create the resource:

- **Name** – Supply a name for the public IP address resource.
- **SKU** – Specify whether the public IP address is used with a Basic or Standard Azure Load Balancer. This must match the type of Load Balance with which the public IP address is used. Refer to the Azure documentation for details.
- **Assignment** – Specify whether to use a Dynamic or Static public IP address.

Note: Dynamic addresses may change when the virtual appliance is restarted.

Assigning a public IP address lets you access the virtual machine from the internet.

Packet Store Volume Size

Specify the size of the vSTREAM packet storage volume. The default is 100 GB.

---

**Table 4 Configuration Parameters in Virtual Machine Settings Page**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vnG1 Private IP</td>
<td>Supply a static, private IP address in the management subnet specified in the Subnets option, above. The address you specify must match the IP address you used to register Virtual nGeniusONE on the NETSCOUT MasterCare Portal. Note: The ARM template only supports IPv4 addresses.</td>
</tr>
<tr>
<td>dbONE Volume Size</td>
<td>Specify the volume size of the dbONE database. The dbONE database stores data from ASI tables collected by managed vSTREAM and vSCOUT agents and is used to support nGeniusONE analysis modules. The default is 1000 GB.</td>
</tr>
<tr>
<td>vSTREAM Machine Size</td>
<td>Click the vSTREAM machine size option and select a Machine Size for the vSTREAM deployment from the list that appears in the adjacent panel. Click Select when you have finished. Note: Make sure you choose one of the Machine Sizes with a star in the RECOMMENDED column. These are the only supported Machine Sizes for vSTREAM. If you select a different Machine Size, the deployment will fail in the final step. Each Machine Size provides a different combination of computing resources (CPU, memory, storage, and networking). You can select from the following supported Machine Sizes for vSTREAM: - DS4_v2 - DS5_v2 NOTE: Machine Sizes are priced differently in the Microsoft Azure Public Cloud based on the amount of resources provisioned. Refer to <a href="https://azure.microsoft.com/en-us/pricing/details/virtual-machines/linux/">https://azure.microsoft.com/en-us/pricing/details/virtual-machines/linux/</a> for details.</td>
</tr>
<tr>
<td>Public IP Address for the vSTREAM</td>
<td>Click the Public IP Address for the vSTREAM option and either select an existing public IP address that's available in the selected subscription and location or use the options in the adjacent Create public IP address panel to create a new one. If you elect to create a new public IP address, set the following options in the Create public IP address panel and click OK to create the resource: - <strong>Name</strong> – Supply a name for the public IP address resource. - <strong>SKU</strong> – Specify whether the public IP address is used with a Basic or Standard Azure Load Balancer. This must match the type of Load Balance with which the public IP address is used. Refer to the Azure documentation for details. - <strong>Assignment</strong> – Specify whether to use a Dynamic or Static public IP address. Note: Dynamic addresses may change when the virtual appliance is restarted. Assigning a public IP address lets you access the virtual machine from the internet.</td>
</tr>
<tr>
<td>Packet Store Volume Size</td>
<td>Specify the size of the vSTREAM packet storage volume. The default is 100 GB.</td>
</tr>
</tbody>
</table>
The next step depends on the type of software plan you are deploying:

- If you are deploying a software plan that includes Virtual nGeniusONE, the License Settings page appears (Figure 8).
- If you are deploying the vSTREAM software plan (the only plan that doesn't include Virtual nGeniusONE), the Summary page appears as in Figure 9 on page 22.

**Figure 8  Configuring Licensing Settings (Software Plans with Virtual nGeniusONE Only)**

If you are configuring a software plan that includes Virtual nGeniusONE, set the following options in the License Settings page and click OK to continue:

**Table 5  Configuration Parameters for in License Settings Page**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vSTREAMSerialNumber</td>
<td>Supply the Serial Number and Password you received from the MasterCare Portal when you registered your software in &quot;Obtaining Licensing Information&quot; on page 12. vSTREAM licenses allow you to manage vSTREAM instances in Virtual nGeniusONE up to a specified number of vCPUs. You need at least one eight-vCPU block license applied in Virtual nGeniusONE in order to manage a vSTREAM instance. You can apply licenses for additional eight-vCPU blocks in Virtual nGeniusONE after it is deployed; refer to the online help for details.</td>
</tr>
<tr>
<td>vSTREAMPassword</td>
<td>Supply the Serial Number and Password you received from the MasterCare Portal when you registered your software in &quot;Obtaining Licensing Information&quot; on page 12. Make sure the IP address you used to obtain the Serial Number and Password is the same as the one specified for the Virtual nGeniusONE IP address in the template, above.</td>
</tr>
<tr>
<td>vnG1SerialNumber</td>
<td></td>
</tr>
<tr>
<td>vnG1Password</td>
<td></td>
</tr>
</tbody>
</table>
The wizard validates your settings and returns a **Summary** page where you can review your settings for the selected software plan (Figure 9).

**Figure 9  Reviewing Settings for the Deployment in the Summary Page**

11. Review the settings in the **Summary** page. When you are satisfied with your settings, click **OK** to create and download an ARM template with the specified parameters.

The Buy page appears (Figure 10).

**Figure 10  Accepting Terms and Creating Instances**

12. Read the terms of use and privacy policy. When you are ready, click the **Create** button to create the instances for the selected software plan.
Azure returns you to your Dashboard and begins the deployment of the selected resources, reporting on the progress of the deployment in **Notifications** (Figure 11).

After a few minutes, the successful deployment is reported under **Notifications** (Figure 12).

**Figure 11 Deployment in Progress**

**Figure 12 Successful Deployment**
Click the **Go to resource group** button under **Notifications** to see the resources created for the selected software plan (Figure 12).

Deployed instances are accessible from the Internet using the public IP address configured during deployment. If you deployed both a Virtual nGeniusONE and a vSTREAM with the proper IP address information, you can open a web browser and connect to the public IP address for the Virtual nGeniusONE server and see that its associated vSTREAM virtual appliance was automatically added in Device Configuration and is available for analysis (Figure 12). For example:

```
http://<Public IP Address>:8080/console/
```

The default credentials for Virtual nGeniusONE are **administrator/netscout1**.

Refer to "Connecting to Instances" on page 25 for information on opening a console connection to the operating system of the new instances.
Connecting to Instances

Connect to the operating system of NETSCOUT instances using either the SSH key pair or password you supplied during deployment of your instances:

1. Click the **Virtual machines** entry in the left column of the Azure dashboard to see a list of the virtual machines in your subscription (Figure 15).

![Figure 15  Displaying the List of Virtual Machines](image)

2. Click the entry for the virtual machine to which you want to connect.

Azure displays a summary page for the selected Virtual Machine (Figure 16).

![Figure 16  Clicking the Connect Button](image)

3. Click the **Connect** button in the menu bar (Figure 16).

4. The **Connect to virtual machine** window provides guidance on using SSH to connect to the instance remotely, either using the Linux `ssh` command or a Windows client, such as PuTTY. Keep in mind the following:

| Public Key Authentication | • If you configured the virtual machine to use public key authentication, you will need access to your private key file.  
|                          | • Your private key file must not be publicly viewable for SSH to work. You can use `chmod 400 <keyfile-name>` to make your private key file not publicly viewable. |
| Password Authentication   | • If you configured the virtual machine to use password authentication, you will need to use the password you configured during deployment of the virtual machine with the default **centos** account. Note that this is a different login than the standard **root/netscout** and **root/netscout1** username/password combinations used by default with NETSCOUT appliances. |
The **Connect To Your instance** window shows you the different IP addresses you can use to connect to your instance along with the correct SSH syntax. For example, in Figure 17, we can use the following SSH command to log in to the default **centos** account provided with NETSCOUT VMIs using password authentication:

$ ssh centos@40.121.xx.xxx

![Figure 17 The Connect to virtual machine Window](image)

**5** Click **Close** on the **Connect To Your Instance** window.

**6** Open a terminal window and use the **ssh** command from the **Connect to virtual machine window** to connect to the NETSCOUT instance. For example:

<table>
<thead>
<tr>
<th>Authentication Type</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Key Authentication</td>
<td>$ ssh -i &quot;&lt;keyfile.pem&gt;&quot; centos@&lt;NETSCOUT_IP&gt;</td>
</tr>
<tr>
<td>Password Authentication</td>
<td>$ ssh centos@&lt;NETSCOUT_IP&gt;</td>
</tr>
</tbody>
</table>

**7** Once logged in as the **centos** user, run the following to use the **root** account:

$ sudo su
Deploying vSCOUT from Virtual nGeniusONE

The installation files for the vSCOUT agent are bundled with the Virtual nGeniusONE image and stored under `/opt/vSCOUT` once the instance has been deployed. There are separate installers depending on the target environment.

Refer to the [vSCOUT Installation Guide](#) for details on selecting the correct installer for your target environment and performing the installation. The general procedure is as follows:

1. Copy the installer for your operating system to the target instance.

2. If you are installing in Linux, you can preconfigure the address of the managing Virtual nGeniusONE server in an `nsagent_config.cfg` configuration file. The values stored in this file are read in during installation and allow the newly installed vSCOUT agent to add itself to Virtual nGeniusONE automatically. Refer to the [vSCOUT Installation Guide](#) for details on how to do this.

   **Note:** If you are installing in Windows, the installation wizard prompts you to supply the IP address of the managing Virtual nGeniusONE server.

3. Run the installer.

4. When installation is complete, open the Agent Configuration Utility (localconsole) and ensure that [4] **Change Config Server Address** is set to the address of the managing Virtual nGeniusONE server.
License Information

By default, the Virtual nGeniusONE component of the NETSCOUT Application Performance Management solution provides support for 25 Type 1 monitoring interfaces.

The table below summarizes how Type 1 interface licenses are consumed by managed vSCOUT, vSTREAM, and InfiniStream appliances:

<table>
<thead>
<tr>
<th>Interface Type</th>
<th>vSCOUT License Consumption in Virtual nGeniusONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>vSCOUT Standard</td>
<td>Every five vSCOUT standard interfaces managed in Virtual nGeniusONE count as one Type 1 interface. In other words, each vSCOUT standard interface counts as 1/5(^{th}) of a Type 1 interface.</td>
</tr>
<tr>
<td>vSCOUT Advanced</td>
<td>Each vSCOUT Advanced interface managed in Virtual nGeniusONE counts as one Type 1 interface. In other words, each vSCOUT Advanced interface counts as a full Type 1 interface.</td>
</tr>
<tr>
<td>vSTREAM / InfiniStream</td>
<td>Each vSTREAM or InfiniStream monitoring interface managed in Virtual nGeniusONE counts as a full Type 1 interface.</td>
</tr>
</tbody>
</table>

So, for example, using the information in the table above, a combination of 25 vSCOUT Standard agents and five vSTREAM appliances, all with one monitoring interface each, would consume a total of 10 Type 1 interfaces.

**Note:** Fractional interface counts are rounded up to the next Type 1 interface. So, for example, if you have six vSCOUTs operating in standard mode with one interface each, a total of one and 1/5\(^{th}\) Type 1 licenses are consumed. However, the actual consumption is rounded up to two Type 1 licenses.

**About vCPU Block Licenses for vSTREAM Virtual Appliances**

In addition to the interface licenses consumed by vSTREAM, you must also license the vCPUs used by each vSTREAM in Virtual nGeniusONE:

<table>
<thead>
<tr>
<th>License Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vCPU Licenses</td>
<td>NETSCOUT uses licenses to control the maximum number of vCPUs provisioned across all vSTREAM instances managed by Virtual nGeniusONE. You purchase and apply vCPU licenses in blocks of eight. Keep in mind the following:</td>
</tr>
<tr>
<td>(vSTREAM Virtual Appliances)</td>
<td>• Blocks cannot be subdivided. For example, a vSTREAM instance provisioned with 12 vCPUs requires two 8-vCPU block licenses. The four unused vCPUs cannot be used by a second vSTREAM instance.</td>
</tr>
<tr>
<td></td>
<td>• Eight-vCPU block licenses can be moved from one vSTREAM instance to another. When a managed vSTREAM is removed from Virtual nGeniusONE, its allotted 8-vCPU block licenses are returned to the Virtual nGeniusONE pool and can be used for newly-added vSTREAM instances. Virtual nGeniusONE will display an error message if you try to add a vSTREAM whose provisioned vCPUs would exceed the licensed capacity.</td>
</tr>
</tbody>
</table>
About vSCOUT Modes (Standard or Advanced)

You can configure vSCOUT to operate in either vSCOUT standard (the default) or vSCOUT Advanced mode. Table 6 summarizes the differences in features and Type 1 license consumption between the different modes:

Table 6  vSCOUT Modes Summarized

<table>
<thead>
<tr>
<th>vSCOUT Mode</th>
<th>Feature Summary</th>
<th>Type 1 License Consumption per vSCOUT Interface</th>
</tr>
</thead>
<tbody>
<tr>
<td>vSCOUT Standard</td>
<td>All traditional vSCOUT functionality, including vSCOUT ASI analysis (refer to the vSCOUT Installation Guide for a summary).</td>
<td>1/5th of a Type 1 interface per vSCOUT standard interface</td>
</tr>
<tr>
<td>(Default)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>vSCOUT Advanced</td>
<td>All vSCOUT Standard functionality, plus on-demand data capture, basic active tests (ping and port availability), and support for Threat Monitor in nGeniusONE, providing proactive DDoS and cyber threat detection.</td>
<td>One Type 1 interface per vSCOUT Advanced interface.</td>
</tr>
</tbody>
</table>

You use the `set vscout_config VSCOUT_MODE <adv | std>` command from the Agent Configuration Utility command line to change the vSCOUT mode. Refer to the vSCOUT Installation Guide for details.

Memory Requirements for Advanced Mode

Note that vSCOUT must be assigned a minimum of two gigabytes of memory before you can enable Advanced mode.

If you try to enable Advanced mode on a vSCOUT with less than two gigabytes of memory assigned, the Agent Configuration utility warns you that there is insufficient memory and reverts to standard mode.

Refer to the vSCOUT Installation Guide for important instructions on provisioning the necessary memory to run vSCOUT in Advanced mode.

TIP: In general, it’s a good idea to provision any virtual machine on which you want to run vSCOUT in Advanced mode with at least an additional two gigabytes of memory beyond the memory you expect to assign to vSCOUT in order to ensure the free memory required. For example, if you expect to assign two gigabytes of memory to vSCOUT (the minimum for Advanced mode), the virtual machine should be provisioned with at least four gigabytes of memory in order to ensure the necessary free memory.
Virtual nGeniusONE Deployment Notes

This section provides operational notes and answers frequently asked questions regarding Virtual nGeniusONE:

Table 7  Tips and Notes

<table>
<thead>
<tr>
<th>Summary</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identification in Server</td>
<td>When operating as a local server, Virtual nGeniusONE is identified as Virtual nGeniusONE in the managing server's Server Management interface.</td>
</tr>
<tr>
<td>Management</td>
<td></td>
</tr>
<tr>
<td>Public Cloud Addressing</td>
<td>You use different IP addresses when integrating Virtual nGeniusONE with other NETSCOUT products depending on where the products reside:</td>
</tr>
<tr>
<td></td>
<td>• When integrating products that reside in the same public cloud space, use private IP addresses. For example, when adding vSCOUT or vSTREAM to a Virtual</td>
</tr>
<tr>
<td></td>
<td>nGeniusONE residing in the same tenant's availability zone, you use their private IP addresses.</td>
</tr>
<tr>
<td></td>
<td>• When integrating a product inside the public cloud with one outside the public cloud, you can still use private/internal IP addresses when using</td>
</tr>
<tr>
<td></td>
<td>a direct cloud connection service.</td>
</tr>
<tr>
<td></td>
<td>If you are not using a direct cloud connection service, you can use either fully-qualified domain names or elastic IP addresses to integrate</td>
</tr>
<tr>
<td></td>
<td>products inside the cloud with those outside. Elastic IP addresses are dynamically-assigned, public-facing IP addresses that remain consistent</td>
</tr>
<tr>
<td></td>
<td>across reboots until explicitly released.</td>
</tr>
<tr>
<td></td>
<td>For example, if you are associating a local Virtual nGeniusONE server in the public cloud with a Distributed Global Manager located in your data center and</td>
</tr>
<tr>
<td></td>
<td>you are not using a direct cloud connect service, you could associate the two using their fully-qualified domain names or public-facing IP</td>
</tr>
<tr>
<td></td>
<td>addresses.</td>
</tr>
</tbody>
</table>

Troubleshooting NETSCOUT Application Performance Management for Azure

If you experience operational or performance issues while using the NETSCOUT Application Performance Management for Azure solution, contact your NETSCOUT Support representative using the information in "Contacting NETSCOUT SYSTEMS, INC." on page iv.
Activating MasterCare Support

All customers who have purchased MasterCare must activate their account online. If you have not previously done so, access the following URL to activate your MasterCare account:

https://my.netscout.com/Pages/default.aspx

Enter the required information in the registration activation form. Your MasterCare account and web login access are confirmed within several business days.