Monitoring OpenVMS Server

eG Innovations Product Documentation

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Total Performance Visibility

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Chapter 1: Introduction

Many server operating systems support the SNMP Host Resources MIB (RFC 2790) that allows monitoring systems to collect critical performance and usage statistics from the servers. The list includes: OS400, Novell Netware, OpenVMS etc.

eG Enterprise, by default, monitors such operating systems and servers in an ‘agentless’ manner – i.e., using a remote agent, which is typically deployed on an external host and not on the monitored host. For further details on eG Enterprise’s Agentless Monitoring capability, please refer to the eG User Manual.

This document discusses a specialized monitoring model that eG Enterprise offers for measuring the health of OpenVMS server.

Chapter 2: How to Monitor OpenVMS Server Using eG Enterprise?

eG Enterprise, by default, monitors the OpenVMS servers in an ‘agentless’ manner – i.e., using an eG remote agent, which is typically deployed on an external host and not on the monitored host. OpenVMS supports the SNMP Host Resources MIB (RFC 2790). Therefore, if SNMP is enabled on OpenVMS, then an eG remote agent can execute tests on OpenVMS to extract critical statistics pertaining to the performance of the operating system.

The broad steps for monitoring the server using eG Enterprise are as follows:

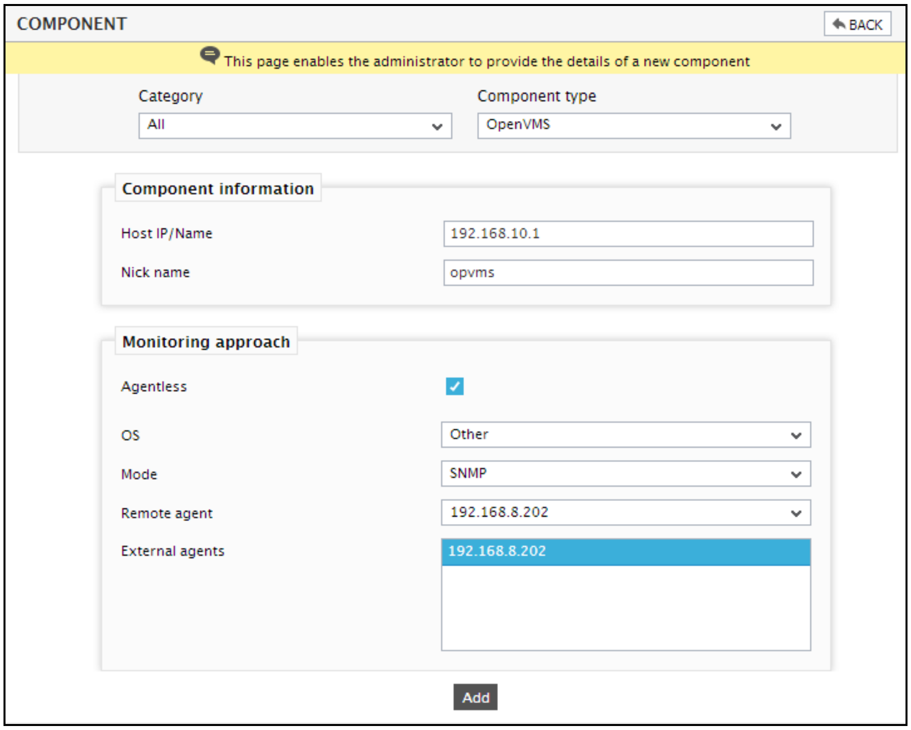
- Managing the OpenVMS Server
- Configuring the tests

These steps have been discussed in following sections.

2.1 Managing the OpenVMS Server

The eG Enterprise cannot automatically discover the OpenVMS server. This implies that you need to manually add the component for monitoring. Remember that the eG Enterprise automatically manages the components that are added manually. To manage a OpenVMS Server component, do the following:

1. Log into the eG administrative interface.
2. Follow the Components -> Add/Modify menu sequence in the **Infrastructure** tile of the **Admin** menu.
3. In the **COMPONENT** page that appears next, select OpenVMS server as the **Component type**. Then, click the **Add New Component** button. This will invoke Figure 2.1.



COMPONENT

This page enables the administrator to provide the details of a new component

Category: All

Component type: OpenVMS

Component information

Host IP/Name: 192.168.10.1

Nick name: opvms

Monitoring approach

Agentless: ☑

OS: Other

Mode: SNMP

Remote agent: 192.168.8.202

External agents: 192.168.8.202

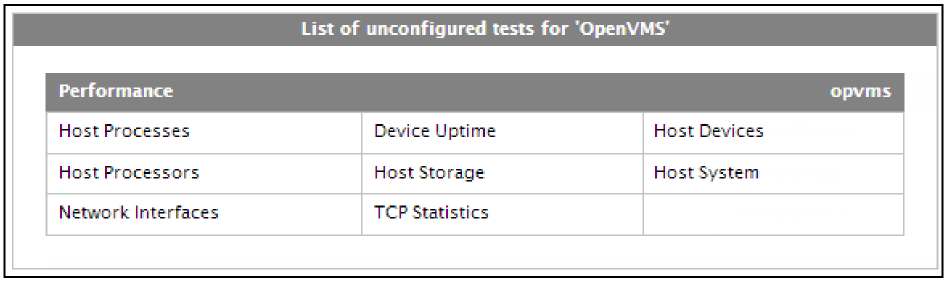
Figure 2.1: Adding an OpenVMS server

4. OpenVMS servers are by default monitored in an agentless manner. Accordingly, the **Agentless** flag in Figure 2.1 is set to **Yes** by default. To perform agentless monitoring of the OpenVMS server, select *Other* as the **OS** and *SNMP* as the **Mode** in Figure 2.1.

5. Then, select a **Remote agent** and click the **Add** button to add the server.

2.2 Configuring the tests

1. When you attempt to signout, a list of unconfigured tests listing the OpenVMS tests requiring manual configuration, will appear (see Figure 2.2).



List of unconfigured tests for 'OpenVMS'

Performance		opvms
Host Processes	Device Uptime	Host Devices
Host Processors	Host Storage	Host System
Network Interfaces	TCP Statistics	

Figure 2.2: The unconfigured tests of the OpenVMS server

2. Click on the test names to configure. To know how to configure the OpenVMS server specific tests, refer to **Monitoring OpenVMS Servers** chapter.

3. Once again, try to signout of the administrative interface. This time you will be prompted to configure the **Device Uptime** test. To know the details on configuring this test, refer to the *Monitoring Cisco Routers* document .

4. Finally, signout of the eG administrative interface.

Chapter 3: Monitoring OpenVMS Servers

OpenVMS is a multitasking and multiprocessing operating system based on VMS (the original operating system for VAX). The "Open" suggests the added support for the UNIX-like interfaces of the POSIX standard.

The eG remote agent executes tests on OpenVMS to extract critical statistics pertaining to the performance of the operating system. These tests and the measures they collect are mapped to specific layers of OpenVMS' layer model, which is depicted by Figure 3.1.

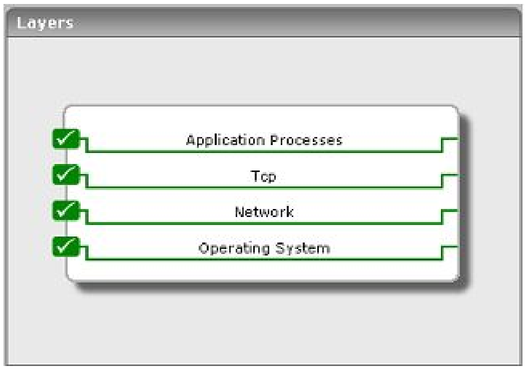
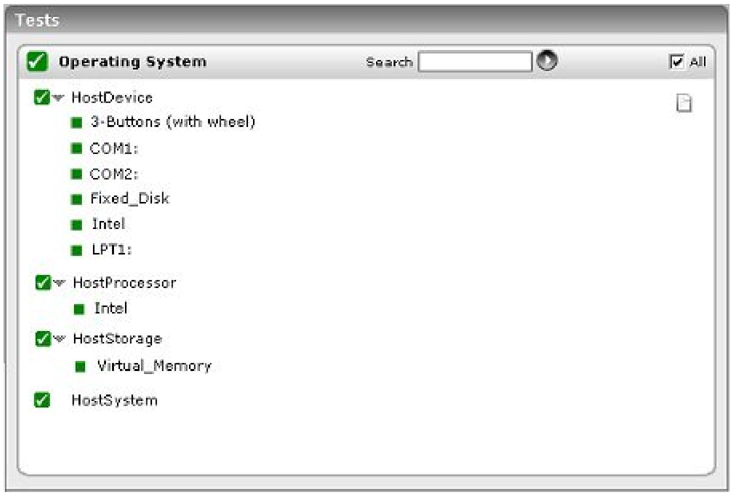


Figure 3.1: The layer model of an OpenVMS server

The sections to come will discuss each of the layers and the tests that execute on them.

3.1 The Operating System Layer

The tests mapped to this layer (see Figure 3.2) measure the performance of the OpenVMS host in terms of the resource utilization of each of its processors, the usage of its storage areas, user traffic on the server, and the status of the various devices accessible via the server.



Tests

☑ Operating System   Search   ☑ All

- ☑ HostDevice
  - 🟩 3-Buttons (with wheel)
  - 🟩 COM1:
  - 🟩 COM2:
  - 🟩 Fixed_Disk
  - 🟩 Intel
  - 🟩 LPT1:
- ☑ HostProcessor
  - 🟩 Intel
- ☑ HostStorage
  - 🟩 Virtual_Memory
- ☑ HostSystem

Figure 3.2: The tests associated with the Operating System layer

3.1.1 Host Devices Test

This test monitors the status of different devices accessible via a server.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every device being accessed via the server being monitored.

Configurable parameters for the test

Parameter	**Description**
Test Period	How often should the test be executed.
Host	The IP address of the host for which this test is to be configured.
SNMPPort	The port at which the monitored target exposes its SNMP MIB; The default value is 161.
SNMPVersion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the SNMPVersion chosen is **v3**, then this parameter will not appear.

Parameter	Description
UserName	This parameter appears only when **v3** is selected as the SNMPVersion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVersion. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
AuthPass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm Password	Confirm the AuthPass by retyping it here.
AuthType	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm • **SHA** – Secure Hash Algorithm
EncryptFlag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
EncryptType	If this EncryptFlag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the EncryptType list. SNMP v3 supports the following encryption types:

Parameter	Description
	- **DES** – Data Encryption Standard - **AES** – Advanced Encryption Standard
EncryptPassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Current status	This measure indicates the current status of a device that is accessible via the server.	Number	A value of 0 indicates that the device is operating normally. A value of 1 indicates that there is a warning associated with the device, whereas a value of 2 signifies an error.
Errors	This measure indicates the number of errors associated with a device that occurred during the last measurement period.	Number	An unusually high number of device errors signifies a problem.

3.1.2 Host Processors Test

This test monitors the CPU usage of every processor on an OpenVMS server.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every processor on the server being monitored.

Configurable parameters for the test

Parameter	Description
Test Period	How often should the test be executed.
Host	The IP address of the host for which this test is to be configured.
SNMPPort	The port at which the monitored target exposes its SNMP MIB; The default value is 161.
SNMPVersion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the SNMPVersion chosen is **v3**, then this parameter will not appear.
UserName	This parameter appears only when **v3** is selected as the SNMPVersion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVersion. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
AuthPass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm Password	Confirm the AuthPass by retyping it here.
AuthType	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts

Parameter	Description
	the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm • **SHA** – Secure Hash Algorithm
EncryptFlag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
EncryptType	If this EncryptFlag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the EncryptType list. SNMP v3 supports the following encryption types: • **DES** – Data Encryption Standard • **AES** – Advanced Encryption Standard
EncryptPassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
CPU utilization	The average, over the last minute, of the percentage of time that a processor was not idle.	Percent	A consistently high value of this measure indicates that there could be a CPU bottleneck on the server.

3.1.3 Host Storage Test

This test auto-discovers all the storage areas of a server and tracks the usage of each of these areas.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every storage area on the server being monitored.

Configurable parameters for the test

Parameter	Description
Test Period	How often should the test be executed.
Host	The IP address of the host for which this test is to be configured.
SNMPPort	The port at which the monitored target exposes its SNMP MIB; The default value is 161.
SNMPVersion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the SNMPVersion chosen is **v3**, then this parameter will not appear.
UserName	This parameter appears only when **v3** is selected as the SNMPVersion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVersion. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the

Parameter	Description
	eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
AuthPass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm Password	Confirm the AuthPass by retyping it here.
AuthType	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm • **SHA** – Secure Hash Algorithm
EncryptFlag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
EncryptType	If this EncryptFlag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the EncryptType list. SNMP v3 supports the following encryption types: • **DES** – Data Encryption Standard • **AES** – Advanced Encryption Standard
EncryptPassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Storage size	Represents the total size of a storage area associated with a server.	GB	
Usage of storage area	This metric denotes the percentage capacity of a storage area that is currently allocated.	Percent	A value close to 100% denotes a storage area that is highly used.
Free space on storage area	This metric denotes the amount of storage of a storage area that is currently available for use.	GB	
Allocation failures on storage area	The number of requests for storage represented by this entity that could not be honored in the last measurement period because there was not enough storage available to service application requests	Number	Ideally, there should be no allocation failures.

3.1.4 Host System Test

This test monitors the number of users accessing a server and the processes executing on a server.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each server being monitored.

Configurable parameters for the test

Parameter	Description
Test Period	How often should the test be executed.
Host	The IP address of the host for which this test is to be configured.

Parameter	Description
SNMPPort	The port at which the monitored target exposes its SNMP MIB; The default value is 161.
SNMPVersion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the SNMPVersion chosen is **v3**, then this parameter will not appear.
UserName	This parameter appears only when **v3** is selected as the SNMPVersion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVersion. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
AuthPass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm Password	Confirm the AuthPass by retyping it here.
AuthType	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm

Parameter	Description
	- **SHA** – Secure Hash Algorithm
EncryptFlag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
EncryptType	If this EncryptFlag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the EncryptType list. SNMP v3 supports the following encryption types: - **DES** – Data Encryption Standard - **AES** – Advanced Encryption Standard
EncryptPassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Current users	The current number of users logged in to the server being monitored.	Number	
Current processes	The current number of processes executing on the server being monitored.	Number	

3.2 The Network Layer

The tests associated with the network layer are depicted by Figure 3.3, and measure the health of the network traffic to the OpenVMS host.

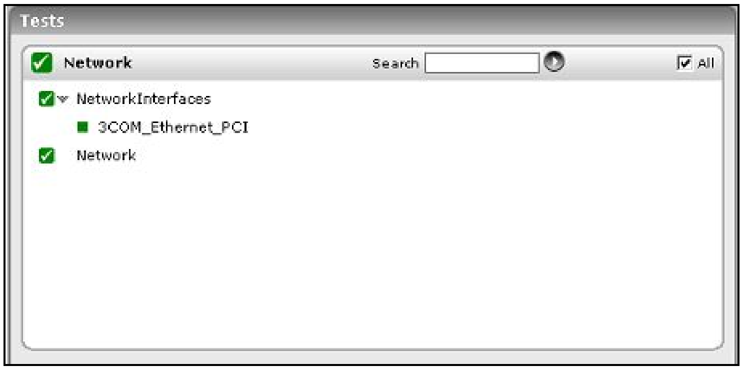


Figure 3.3: The tests associated with the Network layer

For details on the tests depicted by Figure 3.3, refer to the *Monitoring Unix and Windows Servers* document.

3.3 The Tcp Layer

The Tcp layer monitors the TCP connectivity of the OpenVMS server with other hosts (see Figure 3.4).

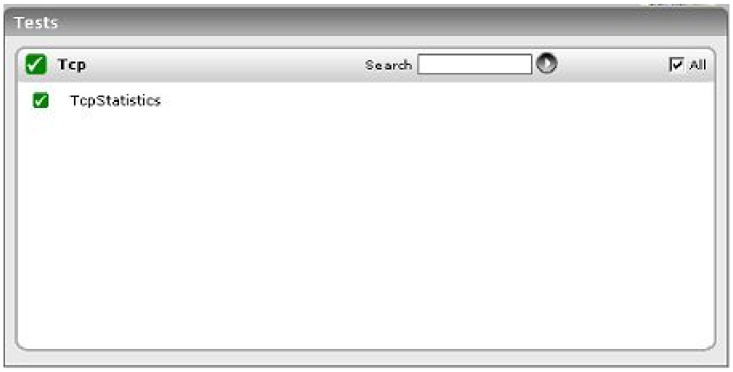


Figure 3.4: The test associated with the Tcp layer

3.3.1 TCP Statistics Test

This test reports TCP statistics pertaining to the target server.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for the server being monitored.

Configurable parameters for the test

Parameters	Description
Test period	How often should the test be executed.
Host	The IP address of the monitored target.
SNMPPort	The port at which the monitored target exposes its SNMP MIB; the default is *161*.
SNMPversion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the snmpversion chosen is **v3**, then this parameter will not appear.
Username	This parameter appears only when **v3** is selected as the SNMPversion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVERSION. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
Authpass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm password	Confirm the Authpass by retyping it here.

Parameters	Description
Authtype	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm • **SHA** – Secure Hash Algorithm
Encryptflag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
Encrypttype	If this Encryptflag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the Encrypttype list. SNMP v3 supports the following encryption types: • **DES** – Data Encryption Standard • **AES** – Advanced Encryption Standard
Encryptpassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Incoming connections	Indicates the connections per second received by the	Conns/Sec	A high value can indicate an increase in input load.

Measurement	Description	Measurement Unit	Interpretation
	server.		
Outgoing connections	Indicates the connections per second initiated by the server	Conns/Sec	A high value can indicate that one or more applications executing on the host have started using a number of TCP connections to some other host (s).
Connection failures	Indicates the rate of half open TCP connections dropped from the listen queue.	Conns/Sec	This value should be 0 for most of the time. A prolonged non-zero value can indicate either that the server is under SYN attack or that there is a problem with the network link to the server that is resulting in connections being dropped without completion.
Current connections	Indicates the currently established connections.	Number	A sudden increase in the number of connections established on a host can indicate either an increase in load to one or more of the applications executing on the host, or that one or more of the applications are experiencing a problem (e.g., a slow down).
Segment rate in	The total number of segments received, including those received with errors. This count includes segments received on currently established connections.	Segments/Sec	
Segment rate out	Indicates the total number of segments sent, including those on current connections but excluding those containing only retransmitted octets.	Segments/Sec	
Retransmissions	Indicates the total number of segments retransmitted – that is, the number of	Segments/Sec	

Measurement	Description	Measurement Unit	Interpretation
	TCP segments transmitted containing one or more previously transmitted octets.		

3.4 The Application Processes Layer

This layer (see Figure 3.5) monitors the availability of the critical processes of the OpenVMS server, and measures the resource usage of these processes.

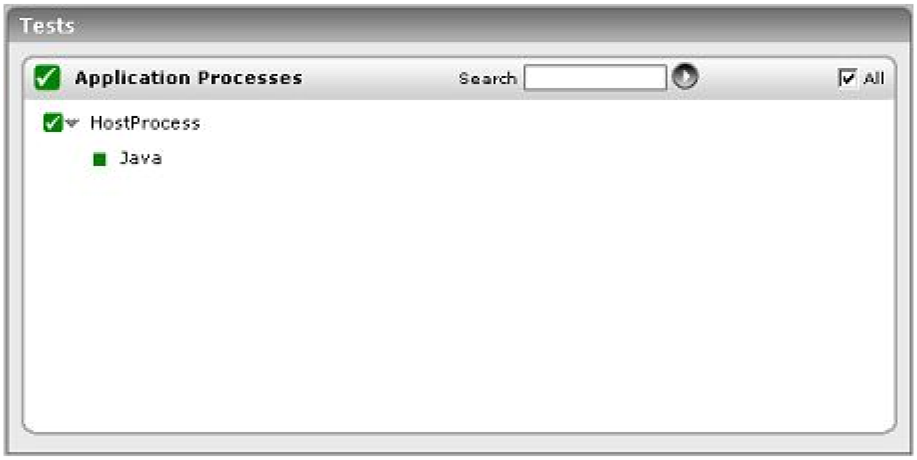


Figure 3.5: The test associated with the Application Processes layer

3.4.1 Host Processes Test

This test monitors the specific processes executing on a server and reports the resource usage of the processes.

Target of the test : An OpenVMS server

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every configured process pattern.

Configurable parameters for the test

Parameter	Description
Test Period	How often should the test be executed.

Parameter	Description
Host	The IP address of the host for which this test is to be configured.
SNMPPort	The port at which the monitored target exposes its SNMP MIB; The default value is 161.
SNMPVersion	By default, the eG agent supports SNMP version 1. Accordingly, the default selection in the SNMPversion list is **v1**. However, if a different SNMP framework is in use in your environment, say SNMP **v2** or **v3**, then select the corresponding option from this list.
SNMPCommunity	The SNMP community name that the test uses to communicate with the firewall. This parameter is specific to SNMP **v1** and **v2** only. Therefore, if the SNMPVersion chosen is **v3**, then this parameter will not appear.
UserName	This parameter appears only when **v3** is selected as the SNMPVersion. SNMP version 3 (SNMPv3) is an extensible SNMP Framework which supplements the SNMPv2 Framework, by additionally supporting message security, access control, and remote SNMP configuration capabilities. To extract performance statistics from the MIB using the highly secure SNMP v3 protocol, the eG agent has to be configured with the required access privileges – in other words, the eG agent should connect to the MIB using the credentials of a user with access permissions to be MIB. Therefore, specify the name of such a user against this parameter.
Context	This parameter appears only when v3 is selected as the SNMPVersion. An SNMP context is a collection of management information accessible by an SNMP entity. An item of management information may exist in more than one context and an SNMP entity potentially has access to many contexts. A context is identified by the SNMPEngineID value of the entity hosting the management information (also called a contextEngineID) and a context name that identifies the specific context (also called a contextName). If the Username provided is associated with a context name, then the eG agent will be able to poll the MIB and collect metrics only if it is configured with the context name as well. In such cases therefore, specify the context name of the Username in the Context text box. By default, this parameter is set to *none*.
AuthPass	Specify the password that corresponds to the above-mentioned Username. This parameter once again appears only if the SNMPversion selected is **v3**.
Confirm Password	Confirm the AuthPass by retyping it here.
AuthType	This parameter too appears only if **v3** is selected as the SNMPversion. From the Authtype list box, choose the authentication algorithm using which SNMP v3 converts the specified username and password into a 32-bit format to ensure security of SNMP transactions. You can choose between the following options: • **MD5** – Message Digest Algorithm

Parameter	Description
	• **SHA** – Secure Hash Algorithm
EncryptFlag	This flag appears only when **v3** is selected as the SNMPversion. By default, the eG agent does not encrypt SNMP requests. Accordingly, the this flag is set to **No** by default. To ensure that SNMP requests sent by the eG agent are encrypted, select the **Yes** option.
EncryptType	If this EncryptFlag is set to **Yes**, then you will have to mention the encryption type by selecting an option from the EncryptType list. SNMP v3 supports the following encryption types: • **DES** – Data Encryption Standard • **AES** – Advanced Encryption Standard
EncryptPassword	Specify the encryption password here.
Confirm Password	Confirm the encryption password by retyping it here.
Timeout	Specify the duration (in seconds) within which the SNMP query executed by this test should time out in this text box. The default is 10 seconds.
Data Over TCP	By default, in an IT environment, all data transmission occurs over UDP. Some environments however, may be specifically configured to offload a fraction of the data traffic – for instance, certain types of data traffic or traffic pertaining to specific components – to other protocols like TCP, so as to prevent UDP overloads. In such environments, you can instruct the eG agent to conduct the SNMP data traffic related to the monitored target over TCP (and not UDP). For this, set this flag to **Yes**. By default, this flag is set to **No**.
Process	Should contain the specific processes to be monitored. Each process to be monitored is specified in the format "name:pattern". The regular expression pattern denotes patterns that will be used to match processes on the server. For instance, to monitor all the Java processes on a server, specify the argument "java_processes:*java*".
UseProcessPath	In some operating systems (example, OpenVMS), the process name in the HOST RESOURCES MIB will be an empty string, and the process path will include the process name. In such cases therefore, the test should be explicitly instructed to search the process path strings for the configured process names/patterns. To ensure this, set the UseProcessPath parameter to **True**. By default, this parameter is set to **False**. Operating systems where process name (in the HOST RESOURCES MIB) is not an empty string can go with this default setting.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Processes running	The number of processes currently executing on the server that match the pattern specified as parameter.	Number	This value indicates if too many or too few processes corresponding to an application are executing on the host.
Memory utilization	The total memory usage of all processes executing on the server that match the pattern specified as parameter. The memory usage is specified as a percentage of the total memory available on the server.	Percent	A very high value could indicate that processes corresponding to the specified pattern are consuming excessive memory resources.
Memory size	The total memory usage(in MB) of all processes executing on the server that match the pattern specified as parameter.	MB	A sudden increase in memory utilization for a process(es) may be indicative of memory leaks in the application.
CPU utilization	The total CPU utilization of all processes executing on the server that match the configured process pattern.	Percent	A high value could signify a CPU bottleneck. The CPU utilization may be high because a few processes are consuming a lot of CPU, or because there are too many processes contending for a limited resource. Check the currently running processes to see the exact cause of the problem.

About eG Innovations

eG Innovations provides intelligent performance management solutions that automate and dramatically accelerate the discovery, diagnosis, and resolution of IT performance issues in on-premises, cloud and hybrid environments. Where traditional monitoring tools often fail to provide insight into the performance drivers of business services and user experience, eG Innovations provides total performance visibility across every layer and every tier of the IT infrastructure that supports the business service chain. From desktops to applications, from servers to network and storage, from virtualization to cloud, eG Innovations helps companies proactively discover, instantly diagnose, and rapidly resolve even the most challenging performance and user experience issues.

eG Innovations is dedicated to helping businesses across the globe transform IT service delivery into a competitive advantage and a center for productivity, growth and profit. Many of the world's largest businesses use eG Enterprise to enhance IT service performance, increase operational efficiency, ensure IT effectiveness and deliver on the ROI promise of transformational IT investments across physical, virtual and cloud environments.

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