



# ***Monitoring COM+ Servers***

***eG Enterprise 6***

**Restricted Rights Legend**

The information contained in this document is confidential and subject to change without notice. No part of this document may be reproduced or disclosed to others without the prior permission of eG Innovations Inc. eG Innovations Inc. makes no warranty of any kind with regard to the software and documentation, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose.

**Trademarks**

Microsoft Windows, Windows NT, Windows 2000, Windows 2003 and Windows 2008 are either registered trademarks or trademarks of Microsoft Corporation in United States and/or other countries.

The names of actual companies and products mentioned herein may be the trademarks of their respective owners.

**Copyright**

©2014 eG Innovations Inc. All rights reserved.

# Table of Contents

	.....	MONITORING COM+ SERVERS1
1.1	THE COM+ SYSTEM LAYER.....	2
1.1.1	<i>COM+SystemTest</i> .....	2
1.1.2	<i>COM+Status Test</i> .....	3
1.2	THE COM+ APPLICATIONS LAYER.....	4
1.2.1	<i>COM+Application Test</i> .....	4
1.3	THE COM+ COMPONENTS LAYER.....	5
1.3.1	<i>COM+Component Test</i> .....	6
1.3.2	<i>COM+Comp Test</i> .....	7
1.4	THE COM+ TRANS LAYER.....	8
1.4.1	<i>Com+Transactions Test</i> .....	9
CONCLUSION	.....	12

# Table of Figures

Figure 1.1: The layer model of a COM+ server.....	1
Figure 1.2: The test associated with the COM+ System layer .....	2
Figure 1.3: The test associated with the COM+ Applications layer.....	4
Figure 1.4: The test associated with the COM+ Components layer.....	6
Figure 1.5: The test associated with the COM+Trans layer .....	9

# Chapter

# 1

# Monitoring COM+ Servers

COM+ is an extension of Component Object Model (COM), Microsoft's strategic building block approach for developing application programs. COM+ is both an object-oriented programming architecture and a set of operating system services. It adds to COM a new set of system services for application components while they are running, such as notifying them of significant events or ensuring they are authorized to run. COM+ is intended to provide a model that makes it relatively easy to create business applications that work well with the Microsoft Microsoft Transaction Server (MTS) in a Windows NT or subsequent system.

For any business-critical application built on the COM+ model to function smoothly, the key prerequisite is the flawless operation of the underlying COM+ framework. Issues such as a sudden increase in the load on the COM+ server, or excessive resource usage by COM+ applications, or a general slowdown in the responsiveness of COM+ components, if not detected and resolved quickly, can upset the stability of the COM+ framework, thereby affecting application performance.

To avoid such negativities, the COM+ server should be continuously monitored.

eG Enterprise prescribes a specialized COM+ monitoring model (see Figure 1.1), which monitors the performance of the applications on top and the COM+ layer beneath, to figure out where the root-cause of application problems lie.



Figure 1.1: The layer model of a COM+ server

Since the bottom 5 layers of Figure 1.1 have been discussed extensively in the *Monitoring Unix and Windows Servers* document, the sections to come will discuss only the top 4 layers of Figure 1.1.

## 1.1 The COM+ System Layer

The COM+System test associated with this layer reports general statistics pertaining to the COM+ system.



Figure 1.2: The test associated with the COM+ System layer

### 1.1.1 COM+SystemTest

This test reports general statistics pertaining to the COM+ system.

Purpose	Reports general statistics pertaining to the COM+ system		
Target of the test	A COM+ server		
Agent deploying the test	An internal agent		
Configurable parameters for the test	1. <b>TEST PERIOD</b> - How often should the test be executed 2. <b>Host</b> - The host for which the test is to be configured		
Outputs of the test	One set of results for every COM+ server being monitored		
Measurements made by the test	Measurement	Measurement Unit	Interpretation
	<b>Number of applications installed:</b>  The number of applications installed on the COM+ server.	Number	
	<b>Number of applications running:</b>  The number of applications running on the COM+ server.	Number	This measure gives the current workload on the COM+ server.

	<b>Number of components installed:</b> The number of components installed on the COM+ server	Number	
	<b>Number of components activated:</b> The number of components activated	Number	This measure can be used to identify when the first invocation has taken place in the newly installed or reinstalled components.
	<b>Number of objects in call:</b> The number of objects being invoked	Number	This measure gives the current workload due to the invocation on the COM+ server.
	<b>Number of instances available in the COM+ system:</b> The number of instances created	Number	This measure gives the current workload on the COM+ server.

### 1.1.2 COM+Status Test

This test automatically discovers all the applications on the COM+ server and reports the status of each. This test is disabled by default. To enable the tests, go to the **ENABLE / DISABLE TESTS** page using the menu sequence : Agents -> Tests -> Enable/Disable, pick **COM+** as the **Component type**, set **Performance** as the **Test type**, choose this test from the **DISABLED TESTS** list, and click on the **>>** button to move the test to the **ENABLED TESTS** list. Finally, click the **Update** button.

<b>Purpose</b>	Reports general statistics pertaining to the COM+ system
<b>Target of the test</b>	A COM+ server
<b>Agent deploying the test</b>	An internal agent

Configurable parameters for the test	1. <b>TEST PERIOD</b> - How often should the test be executed 2. <b>Host</b> - The host for which the test is to be configured 3. <b>restart</b> - If the <b>RESTART</b> option is set to <b>Yes</b> , then the test will attempt to restart the applications that have stopped. Setting this flag to <b>No</b> will ensure that no such attempts are made by the test. 4. <b>excludeapps</b> - Provide a comma-separated list of COM+ applications that the test need not restart even if found not running. By default, this is set to <i>none</i> , indicating that, if the <b>restart</b> option is set to <b>Yes</b> , then, by default, the test will attempt to restart all the discovered COM+ applications 5. <b>rediscover</b> - Indicate how frequently the test needs to rediscover the COM+ applications. For example, specifying the value 2 here indicates that rediscovery will occur every second time this test runs. Accordingly, if the <b>TESTPERIOD</b> chosen is 30 seconds, then rediscovery will take place every 60 (30*2) seconds.						
Outputs of the test	One set of results for every COM+ server being monitored						
Measurements made by the test	<table border="1"> <thead> <tr> <th>Measurement</th> <th>Measurement Unit</th> <th>Interpretation</th> </tr> </thead> <tbody> <tr> <td><b>Availability:</b> Whether the ComPlus application is running or not.</td> <td>Number</td> <td>The value 100 indicates that the application is running or has been successfully restarted. The value 0 indicates that the application restart has failed.</td> </tr> </tbody> </table>	Measurement	Measurement Unit	Interpretation	<b>Availability:</b> Whether the ComPlus application is running or not.	Number	The value 100 indicates that the application is running or has been successfully restarted. The value 0 indicates that the application restart has failed.
Measurement	Measurement Unit	Interpretation					
<b>Availability:</b> Whether the ComPlus application is running or not.	Number	The value 100 indicates that the application is running or has been successfully restarted. The value 0 indicates that the application restart has failed.					

## 1.2 The COM+ Applications Layer

The test associated with this layer reports the resource usage of the applications installed on the COM+ server.



Figure 1.3: The test associated with the COM+ Applications layer

### 1.2.1 COM+Application Test

This test reports statistics related to the COM+ applications installed on the COM+ Server.

## Monitoring COM+ Servers

<b>Purpose</b>	Reports statistics related to the COM+ applications installed on the COM+ Server		
<b>Target of the test</b>	A COM+ server		
<b>Agent deploying the test</b>	An internal agent		
<b>Configurable parameters for the test</b>	1. <b>TEST PERIOD</b> - How often should the test be executed 2. <b>Host</b> - The host for which the test is to be configured		
<b>Outputs of the test</b>	One set of results for every COM+ application installed on the COM+ server being monitored		
<b>Measurements made by the test</b>	<b>Measurement</b>	<b>Measurement Unit</b>	<b>Interpretation</b>
	<b>Cpu usage:</b> The CPU usage of the COM+ application.	Percent	
	<b>Memory usage:</b> The memory utilization of COM+ Application.	MB	
	<b>Thread count:</b> The number of threads running in the particular application.	Number	
	<b>Components activated:</b> The number of components activated.	Number	This measure can be used to identify when the first invocation has taken place in the newly installed or reinstalled components.
	<b>Objects invoked:</b> The number of objects being invoked	Number	This measure gives the current workload due to the invocation on the COM+ server.
	<b>Current instances:</b> The number of instances currently created	Number	This measure gives the current workload on the COM+ server.

## 1.3 The COM+ Components Layer

Using the test mapped to this layer (see Figure 1.4), administrators can determine the health of components registered with the COM+ server.



Figure 1.4: The test associated with the COM+ Components layer

### 1.3.1 COM+Component Test

This test reports key statistics pertaining to the components registered on the COM+ server. To simplify component management, you can create groups of components by clicking on the **Click here** link in the test configuration page. **By default, this test reports metrics only for those components that are part of a group.**

<b>Purpose</b>	Reports key statistics pertaining to the components registered on the COM+ server						
<b>Target of the test</b>	A COM+ server						
<b>Agent deploying the test</b>	An internal agent						
<b>Configurable parameters for the test</b>	<ol style="list-style-type: none"> <li><b>TEST PERIOD</b> - How often should the test be executed</li> <li><b>Host</b> - The host for which the test is to be configured</li> <li><b>autodiscovery</b> - By default, the eG Enterprise suite allows administrators to configure component groups using the eG administrative interface, and reports metrics pertaining to every group so created. Accordingly, by default, <b>autodiscovery</b> is set to <b>NO</b>. If you want the components to be discovered and monitored automatically, then select the <b>YES</b> option against <b>autodiscovery</b>. When this is done, the eG agent automatically discovers all the components on the target COM+ server, and reports one set of measures for every component available on the server.</li> </ol>						
<b>Outputs of the test</b>	One set of results for every component group configure using the eG administrative interface						
<b>Measurements made by the test</b>	<table border="1"> <thead> <tr> <th>Measurement</th> <th>Measurement Unit</th> <th>Interpretation</th> </tr> </thead> <tbody> <tr> <td><b>Objects invoked:</b> The number of objects being invoked.</td> <td>Number</td> <td>A high value indicates high workload that corresponds to components.</td> </tr> </tbody> </table>	Measurement	Measurement Unit	Interpretation	<b>Objects invoked:</b> The number of objects being invoked.	Number	A high value indicates high workload that corresponds to components.
Measurement	Measurement Unit	Interpretation					
<b>Objects invoked:</b> The number of objects being invoked.	Number	A high value indicates high workload that corresponds to components.					

	<b>Objects pooled:</b> The total number of objects created by a pool including objects that are in use and objects that have been deactivated.	Number	
	<b>Maximum pool size:</b> The maximum object pool size.	Number	
	<b>Object references:</b> The total number of objects that are currently held by client references.	Number	
	<b>Response time:</b> The average call duration of method calls.	Secs	A high response time denotes a problem.
	<b>Calls failed:</b> The number of calls failed in the last measurement period.	Number	A high value denotes a problem.
	<b>Calls completed:</b> The number of calls completed during the last measurement period.	Number	

### 1.3.2 COM+Comp Test

This test reports key statistics pertaining to each of the components registered on the COM+ server. This test is disabled by default. To enable the tests, go to the **ENABLE / DISABLE TESTS** page using the menu sequence : Agents -> Tests -> Enable/Disable, pick **COM+** as the **Component type**, set **Performance** as the **Test type**, choose this test from the **DISABLED TESTS** list, and click on the **>>** button to move the test to the **ENABLED TESTS** list. Finally, click the **Update** button.

<b>Purpose</b>	Reports key statistics pertaining to each of the components registered on the COM+ server
<b>Target of the test</b>	A COM+ server
<b>Agent deploying the test</b>	An internal agent

Configurable parameters for the test	1. <b>TEST PERIOD</b> - How often should the test be executed 2. <b>Host</b> - The host for which the test is to be configured		
Outputs of the test	One set of results for every component registered on the COM+ server		
Measurements made by the test	<b>Measurement</b> <b>Objects invoked:</b> The number of objects being invoked.	<b>Measurement Unit</b> Number	<b>Interpretation</b> A high value indicates high workload that corresponds to components.
	<b>Objects pooled:</b> The total number of objects created by a pool including objects that are in use and objects that have been deactivated.	Number	
	<b>Maximum pool size:</b> The maximum object pool size.	Number	
	<b>Object references:</b> The total number of objects that are currently held by client references.	Number	
	<b>Response time:</b> The average call duration of method calls.	Secs	A high response time denotes a problem.
	<b>Calls failed:</b> The number of calls failed in the last measurement period.	Number	A high value denotes a problem.
	<b>Calls completed:</b> The number of calls completed during the last measurement period.	Number	

## 1.4 The COM+ Trans Layer

This layer monitors the transactions to the COM+ server (see Figure 1.5).

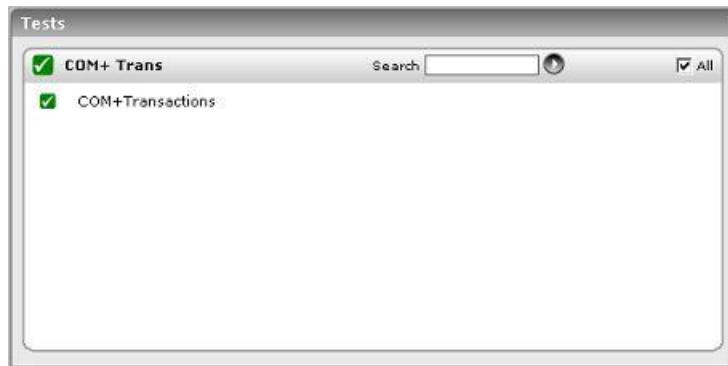


Figure 1.5: The test associated with the COM+Trans layer

### 1.4.1 Com+Transactions Test

This test monitors the transactions executing on a COM+ Server.

Purpose	Reports key statistics pertaining to the components registered on the COM+ server		
Target of the test	A COM+ server		
Agent deploying the test	An internal agent		
Configurable parameters for the test	1. <b>TEST PERIOD</b> - How often should the test be executed 2. <b>Host</b> - The host for which the test is to be configured		
Outputs of the test	One set of results for every COM+ server being monitored		
Measurements made by the test	<b>Measurement</b> <b>Aborted transactions:</b> The number of transactions that were aborted during the last measurement period.	<b>Measurement Unit</b> Number	<b>Interpretation</b> A high value indicates a bottleneck on the COM+ server.
	<b>Aborted transactions rate:</b> The rate at which the transactions on an COM+ server aborted during the last measurement period.	Trans/Sec	

	<b>Active transactions:</b> The number of transactions that are currently active.	Number	A high value for this measure may indicate a large number of active transactions. Alternatively, this may also indicate that due to some reasons the users are not able to complete the transactions.
	<b>Max active transactions:</b> The high watermark of active transactions during the last measurement period.	Number	
	<b>Committed transactions:</b> The number of transactions that were committed during the last measurement period.	Number	
	<b>Committed transactions rate:</b> The rate at which transactions were committed during the last measurement period.	Trans/Sec	
	<b>Forcefully aborted transactions:</b> The number of transactions that were forcefully aborted during the last measurement period.	Number	
	<b>Forcefully committed transactions:</b> The number of transactions that were forcefully committed during the last measurement period.	Number	
	<b>In doubt transactions:</b> The number of transactions in doubt.	Number	

## Monitoring COM+ Servers

	<b>Avg response time:</b> The average time taken by the COM+ Server to respond to user requests.	Secs	A high response time denotes poor responsiveness of the COM+ server. This could be due to the server being overloaded or misconfigured.
	<b>Maximum response time:</b> The maximum response time.	Secs	
	<b>Minimum response time:</b> The minimum response time.	Secs	
	<b>Total transactions rate:</b> The number of transactions per sec.	Trans/Sec	The high value of this metric indicates a lot of transactional activity happening on the server.

# Chapter

# 2

## Conclusion

This document has described in detail the monitoring paradigm used and the measurement capabilities of the eG Enterprise suite of products with respect to **COM+ servers**. For details of how to administer and use the eG Enterprise suite of products, refer to the user manuals.

We will be adding new measurement capabilities into the future versions of the eG Enterprise suite. If you can identify new capabilities that you would like us to incorporate in the eG Enterprise suite of products, please contact [support@eginnovations.com](mailto:support@eginnovations.com). We look forward to your support and cooperation. Any feedback regarding this manual or any other aspects of the eG Enterprise suite can be forwarded to [feedback@eginnovations.com](mailto:feedback@eginnovations.com).