Monitoring Citrix Cloud Site

eG Innovations Product Documentation

www.eginnovations.com

Total Performance Visibility

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Chapter 1: Introduction

Citrix Cloud is a workspace management platform for IT administrators to design, deliver and manage virtual desktops and applications and other services, such as file sharing, on any device.

Citrix components deployed in the datacenter in a traditional on-premises environment are split into two groups in a Citrix Cloud deployment, namely - Control Plane and Resource Plane.

The Control Plane includes controllers, management consoles, SQL database, license server, and optionally StoreFront and NetScaler Gateway. The Citrix Cloud manages the operations of the Control Plane. The Virtual Delivery Agents (VDAs) hosting the apps and desktops remain under the customer's control in the Resource Plane - i.e., the data center of customer's choice, either cloud or on-premises. The Resource Plane typically includes the Citrix XenApp server, XenDesktop VDA, Active Directory, and the Citrix Cloud Connector.

The Citrix Cloud Connector is a Citrix component that serves as a channel for communication between Citrix Cloud and your resource locations, enabling cloud management without requiring any complex networking or infrastructure configuration.

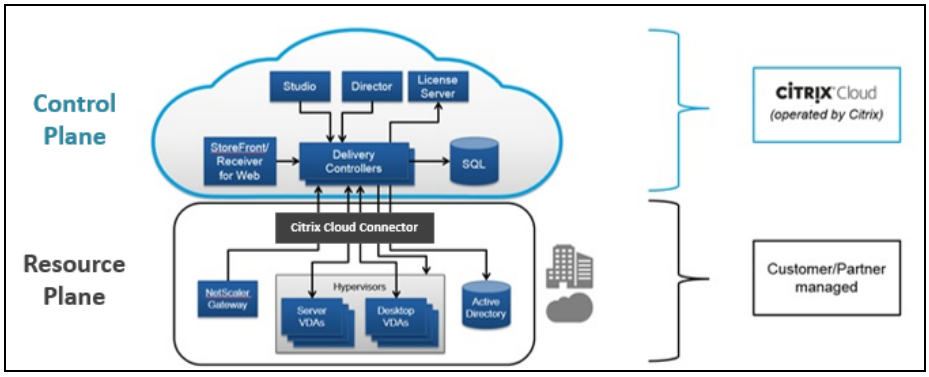


Figure 1.1: How does the Citrix Cloud Connector work

To ensure the high uptime of the Citrix Cloud service, administrators should keep close tabs on the availability and operations of each of the components of the Control Plane and the Resource Plane, proactively detect potential anomalies, and resolve them before users complain.

eG Enterprise already embeds the ability to monitor almost all components of the Control Plane and Resource Plane. Monitoring models for StoreFront, NetScaler, SQL database server, License server, Citrix Director, Active Directory, XenApp, and XenDesktop VDA, pre- exist in the eG Enterprise system.

Now, eG Enterprise additionally provides monitoring support to the Citrix Cloud Connector component in the Resource Plane and the Citrix Cloud Site component in the Control Plane.

This discussion focuses on how eG Enterprise monitors the Citrix Cloud Site component .

Chapter 2: How Does eG Enterprise Monitor the Citrix Cloud Site?

eG Enterprise monitors the Citrix Cloud Site in an agentless manner. **The eG agent should be deployed on the Citrix Cloud Connector host to monitor the Citrix Cloud Site.**

The eG agent makes Cloud API calls to connect to the delivery controller on the Citrix Cloud, and pulls a wide variety of useful metrics pertaining to the controller. To enable the eG agent to connect to and monitor the controller, you need to configure the eG agent with the following details:

- **A valid customer ID**: When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following:
  - Sign in to the Citrix Cloud administrator console.
  - Click the “hamburger menu” in the upper left corner of the console.
  - Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 2.1) is the customer ID you need to configure the eG tests with.

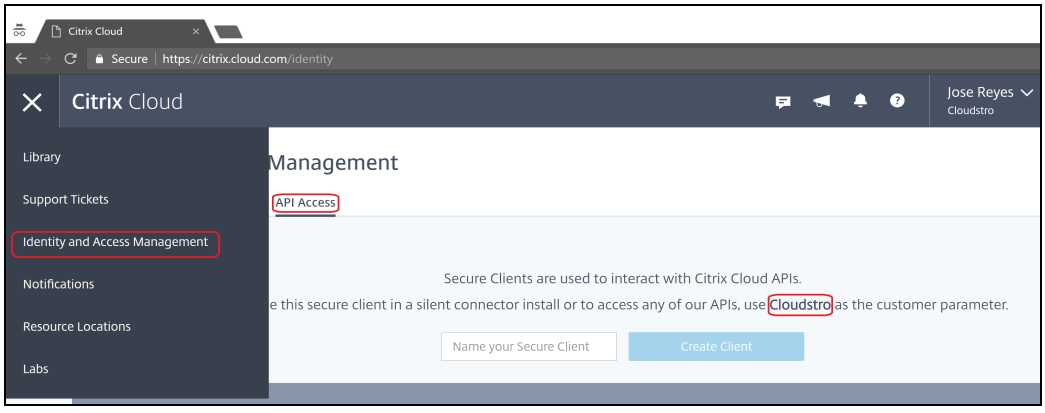


Figure 2.1: Customer ID mapped to the API client

- **The path to the secure client file:** When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named *secureclient.csv*. The eG agent uses the ID and Secret stored in this file to connect to the Citrix

Cloud API. This is why, you will have to configure every test mapped to the Citrix Cloud Delivery Controller component with the full path to the *secureclient.csv*.

Chapter 3: How to Monitor the Citrix Cloud Site Using eG Enterprise?

The broad steps for monitoring the Citrix Cloud Site using eG Enterprise are as follows:

1. Manage the Citrix Cloud Site component using the eG admin interface;
2. Configure the tests for the component.

In this discussion, each of the aforesaid steps will be dealt with elaborately.

3.1 Managing the Citrix Cloud Site

eG Enterprise cannot automatically discover the Citrix Cloud Site. To manage the controller therefore, you need to manually add it to the eG Enterprise system. The steps for the same are as follows:

1. Login to the eG admin interface.
2. Invoke the **Admin** tile menu and follow the Infrastructure -> Components -> Add/Modify menu sequence.
3. In the **Components** page that appears next, pick Citrix Cloud Site as the **Component type** and click the **Add New Component** button. Figure 3.1 will then appear.

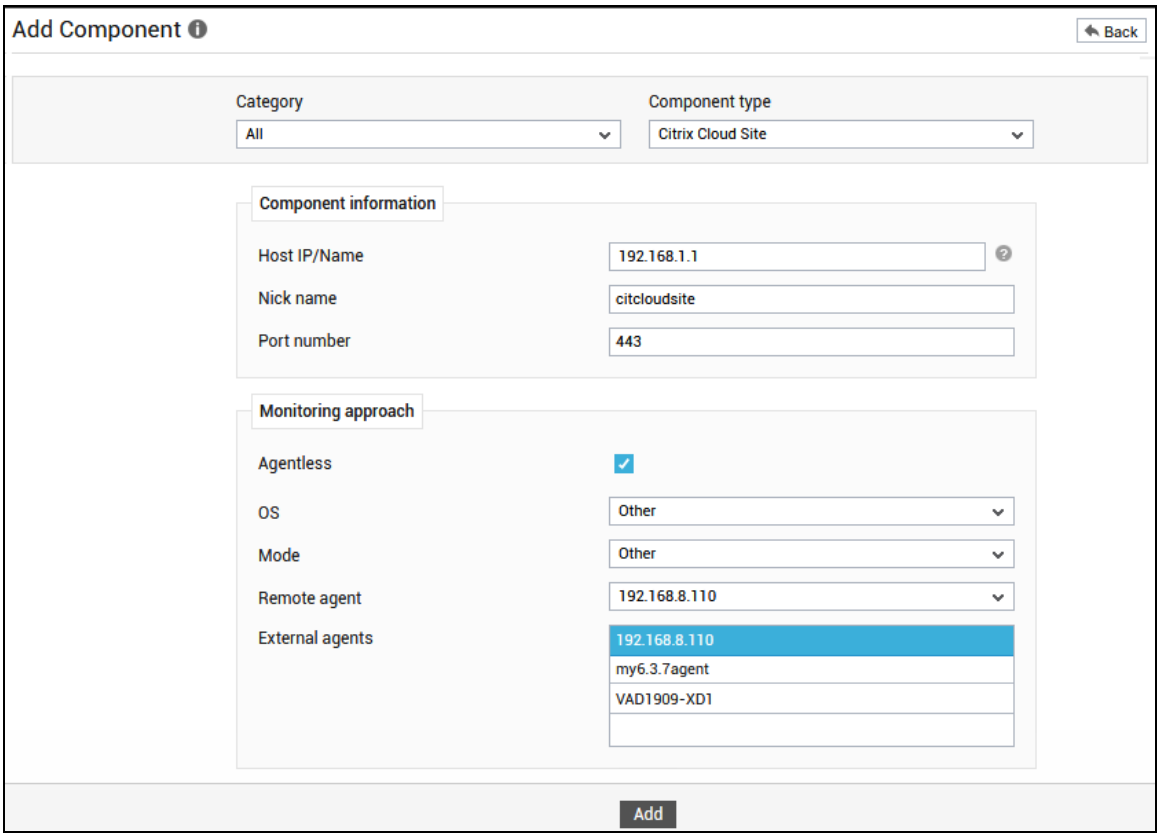


Figure 3.1: Adding a Citrix Cloud Site

4. In Figure 3.1, specify the following:

   - Provide the **Host IP/Name** of the site.
   - Assign a **Nick name** to the site.
   - By default, the controller listens at port 443. The same is displayed against **Port number**.
   - The controller can only be monitored in an agentless manner; so, select the **Agentless** check box in Figure 3.1.
   - Set **OS** and **Mode** as Other.
   - Pick a **Remote agent** for performing the agentless monitoring and an **External agent** to monitor the network connectivity and traffic of the site.

5. Finally, click the **Add** button.

3.2 Configuring Tests for the Citrix Cloud Site

After adding the Citrix Cloud Site component to the eG Enterprise system, proceed to configure the tests for it. For that, first attempt to Sign out of the eG admin interface. Figure 3.2 will then appear listing the tests to be manually configured for the cloud site.

LIST OF UNCONFIGURED TESTS FOR 'CITRIX CLOUD SITE'

PERFORMANCE		CITCLOUDSITE:443
Application Groups - Cloud	Applications - Cloud	Connector Status - Cloud
Controller Service Details - Cloud	Controller Status - Cloud	CVAD License Usage - Cloud
Delivery Groups - Cloud	Desktop OS Machines - Cloud	Failed Machines - Cloud
Hypervisor Details - Cloud	Login Details - Cloud	Logon Performance By Delivery Groups - Cloud
Machine Catalog Details - Cloud	My Services - Cloud	Open Tickets - Cloud
Server OS Machines - Cloud	Session and Application States - Cloud	Site Details - Cloud
Tags Usage - Cloud	User Connection Failures - Cloud	User Connections - Cloud
User Logon Performance - Cloud	Zones Details - Cloud	

Figure 3.2: List of unconfigured tests for the Citrix Cloud Site

Click on any test to configure it. For instance, clicking the **Applications - Cloud** test will reveal Figure 3.3 which will list the parameters that need to be configured for that test. To know how to configure these parameters, refer the Section **4.5.1** topic.

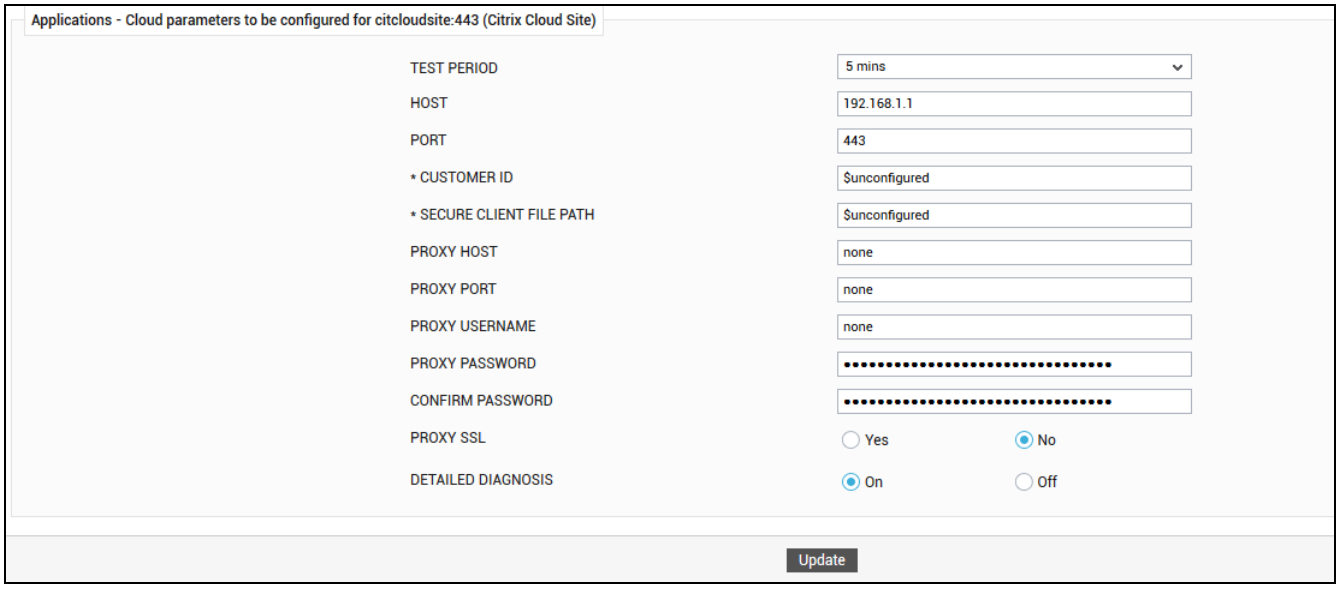


Figure 3.3: Configuring the Applications - Cloud test

Once the component is managed, click on the **Monitor** tab to view the current state and metrics of the Citrix Cloud Site.

Chapter 4: Monitoring the Citrix Cloud Site

eG Enterprise provides a specialized Citrix Cloud Site monitoring model to capture the metrics and report the state of a managed cloud site.

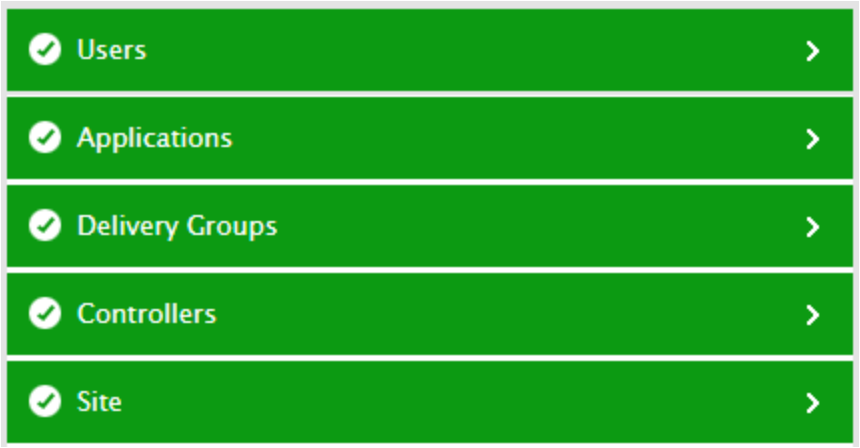


Figure 4.1: Layer model of the Citrix Cloud Site

Each layer of Figure 4.1 above is mapped to tests that measure in real-time the availability and operational efficiency of the cloud delivery controller. Using these metrics, administrators can find quick and accurate answers for the following performance queries:

- How many controllers are operating in the site? Is any controller in the Failed state? If so, which one is it? Which machines are registered with the failed controller?
- Is the license for the site in the grace period currently?
- Are the broker server and configuration service up and running on the controller?
- Has any slowness been detected in the functioning of the Citrix XML service? At which step of the login and application enumeration process did this slowness originate?
- How many delivery groups are managed by the controller? Which ones are unavailable now?
- Is any delivery group running out of free machines?
- Are any machines disconnected from a delivery group? Which delivery group is it and which machines are disconnected?
- Are there any machines that are consuming CPU excessively in a delivery group?
- Are there any latent machines in a delivery group?

- Have any errors been detected in the machines in a delivery group?
- Which delivery group consumes the highest CPU, memory, disk space?
- Is the controller overloaded with sessions? What type of sessions (HDX or RDP) are contributing to the load? Which delivery group is handling the most number of sessions?
- Are any sessions reconnecting?
- Which are the applications published on the machines registered with the controller? Which of these applications are enabled? Which application receives the highest priority in terms of CPU?

Each of the layers of Figure 4.1 are dealt with elaborately in the sections that will follow

4.1 The Site Layer

Using the tests mapped to this layer, administrators can identify the site and zone to which the managed delivery controller belongs. The tests also reveal the composition of the site, the features enabled for the site, the license status of the site. By monitoring the zone to which the managed controller belongs, administrators can also promptly detect a failover when it occurs.

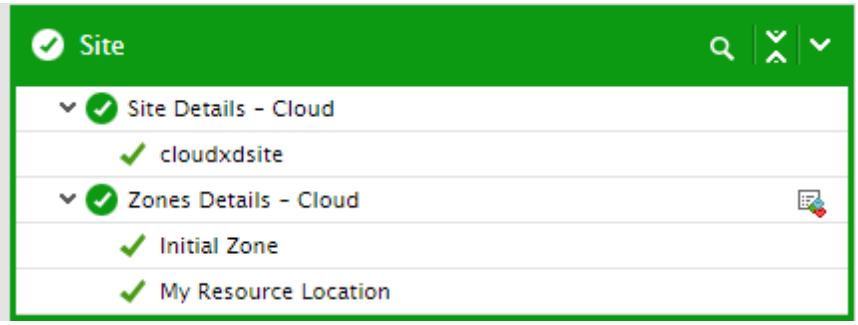


Figure 4.2: The tests mapped to the Site layer

4.1.1 Site Details - Cloud Test

A Site comprises of a delivery controller and the other core components such as machine catalogs, delivery groups, a Microsoft SQL database server, a license server, Citrix StoreFront/Receiver, Citrix Studio, etc.

This test promptly alerts administrators if it finds the following anomalies in a site:

- License is in grace period;
- DNS resolution is disabled;

- Trust requests are not sent to the XML service;
- The site is overloaded with sessions.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for the site to which the managed cloud delivery controller belongs

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the “hamburger menu” in the upper left corner of the console. ◦ Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in the below figure) is the customer ID you need to configure the eG tests with.

Parameter	Description

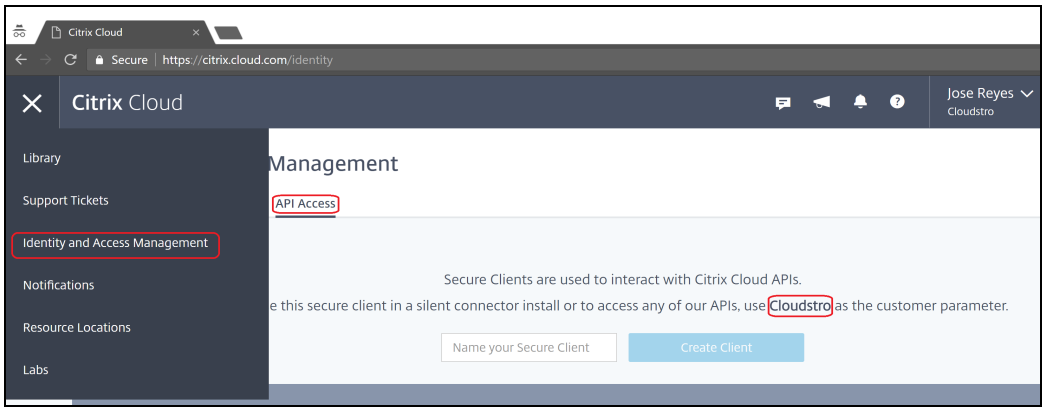


Figure 4.3: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Active sessions	Indicates the total number of sessions that are currently active on this	Number	This measure is a good indicator of the load on this site.

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td>site.</td><td></td><td></td></tr>
<tr><td>Is DNS resolution enabled?</td><td>Indicates whether the DNS resolution is enabled or not on this site.</td><td></td><td>The values and their corresponding numeric values that this measure could report are:
<table><tr><th>Measure value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:
By default, this measure reports the values Yes or No while indicating whether DNS resolution is enabled or not on this site. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>Is secure ICA required?</td><td>Indicates whether/not a secure ICA is required for this site.</td><td></td><td>By default, client-server communications are obfuscated at a basic level through the SecureICA feature, which can be used to encrypt the ICA protocol.
Plug-ins use the ICA protocol to encode user input (keystrokes and mouse clicks) and address it to a server farm for processing. Server farms use the ICA protocol to format application output (display and audio) and return it to the client device.
You can increase the level of encryption for the ICA protocol when you publish a resource or after you publish a resource.
In addition to situations when you want to protect against internal security threats, such as eavesdropping, you may want to use ICA encryption in the following situations:
• You need to secure communications from devices that use Microsoft DOS or run on Win16 systems
• You have older devices running plug-in software that cannot be upgraded to use SSL
• As an alternative to SSL/TLS encryption, when there</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>is no risk of a “man-in-the-middle” attack

The values that this measure can report and their corresponding numeric values are:

<table><tr><th>Measure value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:

By default, this measure reports the values Yes or No while indicating whether a secure ICA is required for this site or not. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>Are trust requests sent to the XML service port?</td><td>Indicates whether/not trust requests were sent to the XML service.</td><td></td><td>Trusting requests sent to the XML Service means:

• Smooth Roaming works when connecting with the Web Interface using pass-through or smart card authentication, and when connecting with the online plug-in using smart card authentication or the Kerberos pass-through option.

For example, you can use workspace control to assist health-care workers in a hospital using smart cards, who need to move quickly among workstations and be able to pick up where they left off in published applications.

• XenApp can use the information passed on from Access Gateway (Version 4.0 or later) to control application access and session policies. This information includes Access Gateway filters that can be used to control access to published applications and to set XenApp session policies. If you do not trust requests sent to the XML Service, this additional</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>information is ignored.

The values that this measure can report and their corresponding numeric values are:

<table><tr><th>Measure value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:

By default, this measure reports the values Yes or No while indicating whether/not trust requests were sent to the XML service. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>Total controllers on this site</td><td>Indicates the total number of delivery controllers that are configured for this site.</td><td>Number</td><td>Use the detailed diagnosis of this measure to know which controllers are part of the site.</td></tr>
<tr><td>Total connectors on this site</td><td>Indicates the total number of cloud connectors in this site.</td><td>Number</td><td>Use the detailed diagnosis of this measure to know which connectors are operating in this site.</td></tr>
<tr><td>Is connection leasing enabled?</td><td>Indicates whether/not connection leasing is enabled for this site.</td><td></td><td>To ensure that the Site database is always available, Citrix recommends starting with a fault-tolerant SQL Server deployment by following high availability best practices from Microsoft. However, network issues and interruptions may prevent Delivery Controllers from accessing the database, resulting in users not being able to connect to their applications or desktop. The connection leasing feature supplements the SQL Server high availability best practices by enabling users to connect and reconnect to their most recently used</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			applications and desktops, even when the Site database is not available. Although users may have a large number of published resources available, they often use only a few of them regularly. When you enable connection leasing, each Controller caches user connections to those recently used applications and desktops during normal operations (when the database is available). The leases generated on each Controller are uploaded to the Site database for periodic synchronization to other Controllers on the Site. In addition to leases, each Controller's cache holds application, desktop, icon, and worker information. The lease and related information is stored on each Controller's local disk. If the database becomes unavailable, the Controller enters leased connection mode and "replays" the cached operations when a user attempts to connect or reconnect to a recently used application or desktop from StoreFront. Connections are cached for a lease period of two weeks. So, if the database becomes unavailable, the desktops and applications that the user launched in the previous two weeks remain accessible to that user through StoreFront. However, desktops and applications that have not been launched during the previous two-week lease period are not accessible when the database is unavailable. Connection leasing is enabled by default. You can turn connection leasing off or on from the PowerShell SDK or the Windows registry. This measure reports the value *Yes* if connection leasing is enabled for a site and the value *No* if connection leasing is not enabled for a site. The numeric values that correspond to these measure values are as follows:

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, this measure reports the values Yes or No while indicating whether/not connection leasing is enabled for the site. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.
</td></tr>
<tr><td>Is license in grace period?</td><td>Indicates whether/not the license for this site is in the grace period.</td><td></td><td>
During the Supplemental Grace Period (SGP), the license policy engine will grant unlimited connections, for about 15 days to allow for fixing the issue. An alarm is activated when the grace period expires, and the Delivery Controller cannot checkout licenses to launch sessions from license server. After the expiration of SGP, regular license limits are enforced.

If the license for the site is in the grace period, then the value of this measure will be Yes. If the license has not entered the grace period, then the value of this measure will be No.

The numeric values that correspond to these measure values are as follows:
<table>
<tr><th>Measure value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, this measure reports the values Yes or No while indicating whether/not the site license is in the grace period. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.

If this measure reports that the license is in grace period,
</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>then you may instantly want to know which license server the delivery controller is communicating with and the type of desktop and application licenses it manages . At this juncture, you can use the detailed diagnosis of this measure (if enabled) to ascertain the same.</td></tr>
<tr><td>Is license in out of box grace period?</td><td>Indicates whether/not the license grace period for this site has expired.</td><td></td><td>If the license for the site has lived out its grace period, then the value of this measure will be Yes. If the license grace period has not expired, then the value of this measure will be No.

The numeric values that correspond to these measure values are as follows:

<table><tr><th>Measure value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:

By default, this measure reports the values Yes or No while indicating whether/not the grace period of the site license has expired. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>License grace hours left</td><td>Indicates how much time (in hours) is left for the grace period to expire.</td><td>Hours</td><td>This measure will report a value only if the value of the 'Is license in grace period?' measure is 'Yes'.

If the value of this measure is low, then you may want to quickly install additional licenses on the site to ensure that your users receive uninterrupted access to their critical applications and desktops. Because, upon the expiry of the grace period, the delivery controllers in the site can not checkout licenses to launch sessions from license server.</td></tr>
<tr><td>Is secondary delivery controller?</td><td>Indicates whether this site contains secondary delivery</td><td></td><td>The numeric values that correspond to these measure values are as follows:</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td>controller or not.</td><td></td><td>
<table>
<tr><th>Measure value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, this measure reports the values Yes or No while indicating whether/not this site contains secondary delivery controller. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.
</td></tr>
<tr><td>Is local host cache enabled?</td><td>Indicates whether the local host cache is enabled in this site or not.</td><td></td><td>Local Host Cache is the most comprehensive high availability feature in XenApp and XenDesktop. The Local Host Cache (LHC) feature allows connection brokering operations in a XenApp or XenDesktop Site to continue when an outage occurs. An outage occurs when the connection between a Delivery Controller and the Site database fails. Local Host Cache engages when the site database is inaccessible for 90 seconds.
The numeric values that correspond to these measure values are as follows:
<table>
<tr><th>Measure value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, the measure values reports the values Yes or No while indicating whether/not the local host cache is enabled. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.
</td></tr>
<tr><td>Is reuse machines without shutdown in outage</td><td>Indicates whether the machines in this site can be reused without</td><td></td><td>By default, power-managed desktop VDAs in pooled Delivery Groups are placed in maintenance mode when an outage occurs. Once the outage is resolved, the desktop will be shutdown and then made available for use. You can change this default behavior, by enabling</td></tr>
</table>

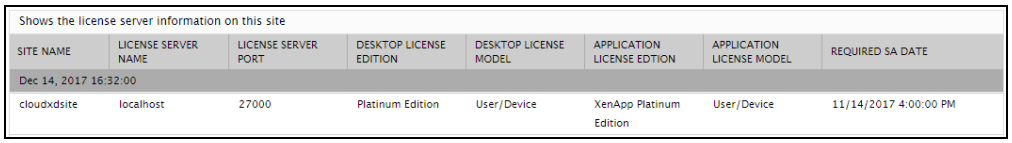
<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td>allowed?</td><td>shutdown during outage.</td><td></td><td>LHC and setting the ReuseMachinesWithoutShutdownInOutageAllowed to "true". As a result, the desktop VDAs will be reused without shutdown during the outage.

The numeric values that correspond to these measure values are as follows:

<table><tr><th>Measure value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:

By default, this measure reports the values Yes or No while indicating whether/not the machines are allowed to be reused without shutdown during outage. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>Total unique users</td><td>Indicates the total number of unique users to this site.</td><td>Number</td><td></td></tr>
<tr><td>Peak concurrent users</td><td>Indicates the high watermark of concurrent license users in this site.</td><td>Number</td><td></td></tr>
</table>

The detailed diagnosis of the *Is license in grace period?* measure displays the name of the License server in the site and the port at which it listens. Alongside, the detailed diagnosis displays the desktop model, desktop edition, application model and application edition that is compatible with the license. The date on which the license would finally expire/the last date for renewal of the license is provided in the **REQUIRED SA DATE** column. This information enables to determine when the license is likely to expire, and accordingly plan to renew it.

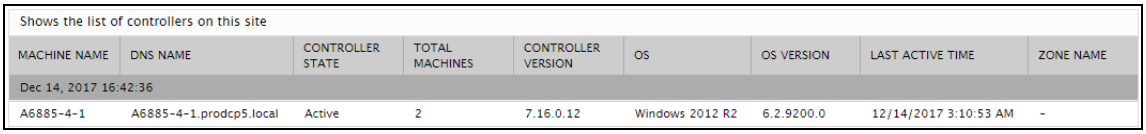


Shows the license server information on this site

SITE NAME	LICENSE SERVER NAME	LICENSE SERVER PORT	DESKTOP LICENSE EDITION	DESKTOP LICENSE MODEL	APPLICATION LICENSE EDTION	APPLICATION LICENSE MODEL	REQUIRED SA DATE
Dec 14, 2017 16:32:00							
cloudxdsite	localhost	27000	Platinum Edition	User/Device	XenApp Platinum Edition	User/Device	11/14/2017 4:00:00 PM

Figure 4.4: The detailed diagnosis of the Is license in grace period? measure

The detailed diagnosis of the *Total controllers on the site* measure displays the names of the delivery controllers on this site. For each controller, the detailed diagnosis additionally reveals the machine on which that controller is installed, the total number of desktops managed by the controller, the state of the controller, the version of the controller, the type of operating system, the version of the operating system, the last time at which the controller was active, and the zone to which the controller belongs. This information helps you to identify the controllers that are inactive.

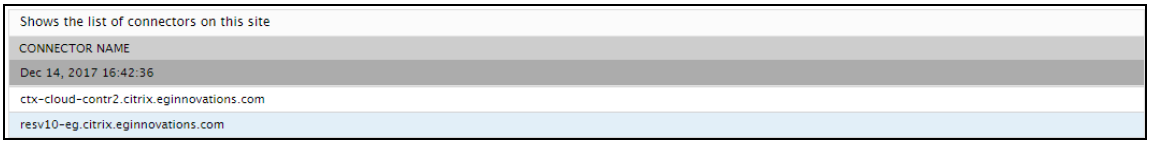


Shows the list of controllers on this site

MACHINE NAME	DNS NAME	CONTROLLER STATE	TOTAL MACHINES	CONTROLLER VERSION	OS	OS VERSION	LAST ACTIVE TIME	ZONE NAME
Dec 14, 2017 16:42:36								
A6885-4-1	A6885-4-1.prodcp5.local	Active	2	7.16.0.12	Windows 2012 R2	6.2.9200.0	12/14/2017 3:10:53 AM	-

Figure 4.5: The detailed diagnosis of the Total controllers on this site measure

Use the detailed diagnosis of the *Total connectors on this site* measure to know which cloud connectors are operating in the site.



Shows the list of connectors on this site

CONNECTOR NAME
Dec 14, 2017 16:42:36
ctx-cloud-contr2.citrix.eginnovations.com
resv10-eg.citrix.eginnovations.com

Figure 4.6: The detailed diagnosis of the Total connectors on this site measure

4.1.2 Zones Details - Cloud Test

Deployments that span widely-dispersed locations connected by a WAN can face challenges due to network latency and reliability. One of the means by which these challenges can be mitigated is by configuring zones. Zones can help users in remote regions connect to resources without necessarily forcing their connections to traverse large segments of the WAN. In other words, zones connect users to resources that are closest to them, keeping traffic 'local'. Using zones allows effective Site management from a single Citrix Studio console, Citrix Director, and the Site database.

A Site always has one primary zone, which should include the central Site database and at least two Delivery Controllers. It can also optionally have one or more satellite zones, which should include one or more Controllers, StoreFront servers, and NetScaler Gateway servers.

When a Delivery Controller in a zone (primary/satellite) fails, another one in the same zone will take over. But how does an administrator determine that a failover has occurred in a primary zone? By executing this test at regular intervals, administrators can be promptly alerted if a controller in primary zone fails over to another controller in the same zone. Additionally, this test also scans each zone configured in a site and reports the number of controllers, delivery groups, and machine catalogs in that zone.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for the zone to which the managed site belongs

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the “hamburger menu” in the upper left corner of the console. ◦ Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.

Parameter	Description

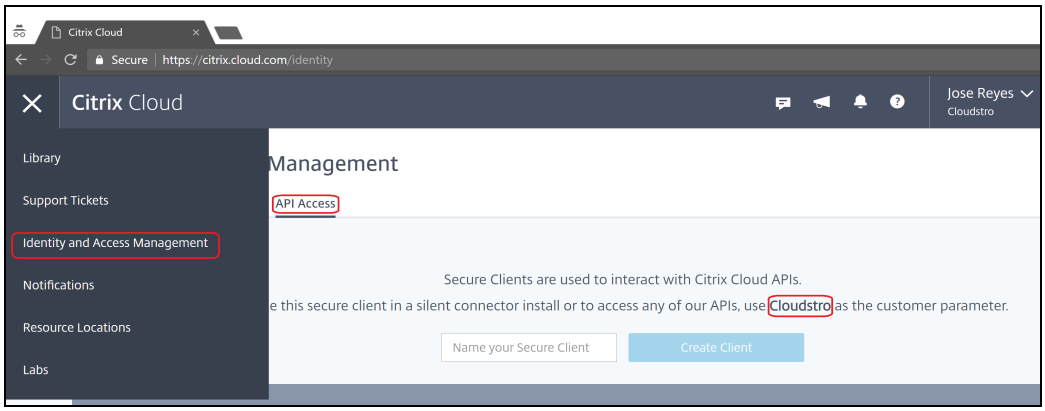


Figure 4.7: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Is primary zone?	Indicates whether/not this is the primary zone.		The values that this measure reports and their corresponding numeric values are listed in the table below:

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>Yes</td><td>1</td></tr>
<tr><td>No</td><td>0</td></tr>
</table>
Note:
By default, this measure reports the above-mentioned Measure Values to indicate whether a zone is a primary or a satellite zone. However, in the graph of this measure, the same will be represented using the numeric equivalents.
</td></tr>
<tr><td>Has primary zone recently changed?</td><td>Indicates whether/not the state of the primary zone changed during the last measurement period.</td><td></td><td>This measure will report a value only if the 'Is primary zone?' measure reports the value 'Yes'.
Typically, when a controller in a primary zone fails over to another controller in the same zone in the last measure period, then this measure will report the value Yes. If no failover has occurred in the primary zone between two measure periods, then the value of this measure will be No.
The numeric values that correspond to the measure values discussed above are listed in the table below:
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>Yes</td><td>1</td></tr>
<tr><td>No</td><td>0</td></tr>
</table>
Note:
By default, this measure reports the above-mentioned Measure Values to</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			indicate whethe/not a failover has occurred in the primary zone. However, in the graph of this measure, the same will be represented using the numeric equivalents.
Total controllers	Indicates the number of controllers in this zone.	Number	Use the detailed diagnosis to know which controllers are in this zone and when each controller was last started.
Total delivery groups	Indicates the number of delivery groups in this zone.	Number	Use the detailed diagnosis of this measure to know which delivery groups are operating in this zone.
Total machine catalogs	Indicates the number of machine catalogs in this zone.	Number	Use the detailed diagnosis of this measure to identify the machine catalogs in this zone.
Total connectors	Indicates the number of Cloud connectors in this zone.	Number	Use the detailed diagnosis of this measure to identify the Cloud connectors in this zone.

The detailed diagnosis of the *Total controllers* measure lists the controllers in this zone, their version, their OS details, and the last start and activity time of each controller. A quick look at these details will also indicate if a failover occurred within the zone recently, and if so, which controller failed and which one took over.

Shows the list of controllers on this site

MACHINE NAME	DNS NAME	CONTROLLER STATE	TOTAL MACHINES	CONTROLLER VERSION	OS	OS VERSION	LAST ACTIVE TIME	ZONE NAME
Dec 14, 2017 16:42:36								
A6885-4-1	A6885-4-1.prodcp5.local	Active	2	7.16.0.12	Windows 2012 R2	6.2.9200.0	12/14/2017 3:10:53 AM	-

Figure 4.8: The detailed diagnosis of the Total controllers measure

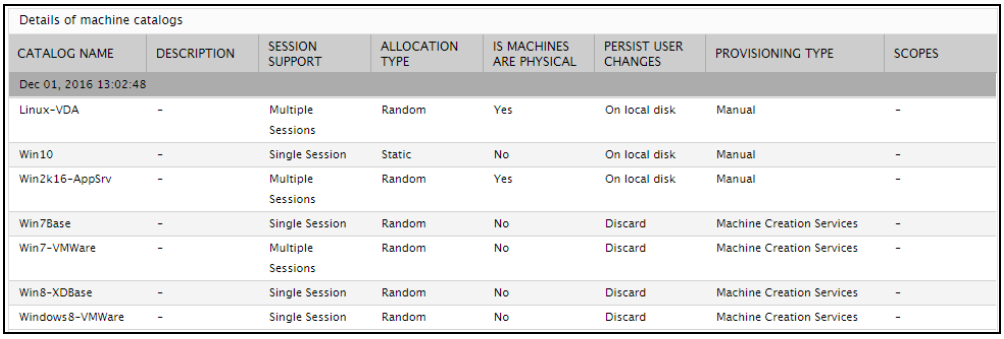
The detailed diagnosis of the *Total delivery groups* measure provides the current state and configuration of every delivery group in the zone.

Details of delivery groups

DELIVERY GROUP NAME	DESCRIPTION	SESSION SUPPORT	IS ENABLED	IN MAINTENANCE MODE	TOTAL MACHINES	DESKTOP KIND	SECURE ICA REQUIRED	SHU USE
Dec 01, 2016 13:02:48								
Win8-Apdsk1	-	Single Session	True	False	1	Shared	False	Tru

Figure 4.9: The detailed diagnosis of the Number of delivery groups measure

The detailed diagnosis of the *Total machine catalogs* measure reveals the catalogs present in the zone and their complete details.



Details of machine catalogs

CATALOG NAME	DESCRIPTION	SESSION SUPPORT	ALLOCATION TYPE	IS MACHINES ARE PHYSICAL	PERSIST USER CHANGES	PROVISIONING TYPE	SCOPES
Dec 01, 2016 13:02:48							
Linux-VDA	-	Multiple Sessions	Random	Yes	On local disk	Manual	-
Win10	-	Single Session	Static	No	On local disk	Manual	-
Win2k16-AppSrv	-	Multiple Sessions	Random	Yes	On local disk	Manual	-
Win7Base	-	Single Session	Random	No	Discard	Machine Creation Services	-
Win7-VMWare	-	Multiple Sessions	Random	No	Discard	Machine Creation Services	-
Win8-XDBase	-	Single Session	Random	No	Discard	Machine Creation Services	-
Windows8-VMWare	-	Single Session	Random	No	Discard	Machine Creation Services	-

Figure 4.10: The detailed diagnosis of the Total machine catalogs measure

4.1.3 Tag Usage - Cloud Test

Tags are strings that identify items such as machines, applications, desktops, Delivery Groups, Application Groups, and policies. After creating a tag and adding it to an item, administrators can tailor certain operations to apply to only items that have a specified tag. Additionally, administrators can configure tag restrictions while creating or editing desktops in Delivery Groups, and creating and editing Application Groups. The tag restriction feature provides greater flexibility and allows administrators to use the existing machines for more than one publishing task, saving the costs associated with deployment and managing additional machines. Furthermore, the tags applied on the items help administrators to define and fine-tune the policies and usage restrictions for the items. Sometimes, administrators may wish to review the utilization of the tags and tag restrictions in the environment. For this purpose, administrators can use the **Tag Usage - Cloud** test!

This test auto-discovers the tags and tag restrictions, and reveals the count of Application Groups, Desktop Groups, machines and applications that are tagged. In addition, this test also reports the number of objects, unknown objects, reboot schedules and Entitlement policy rules with tag restrictions. This way, administrators can easily identify the count of the items that are tagged or tag restricted in the environment.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each tag on the target Cloud Delivery Controller.

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ○ Sign in to the Citrix Cloud administrator console. ○ Click the "hamburger menu" in the upper left corner of the console. ○ Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.
Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.

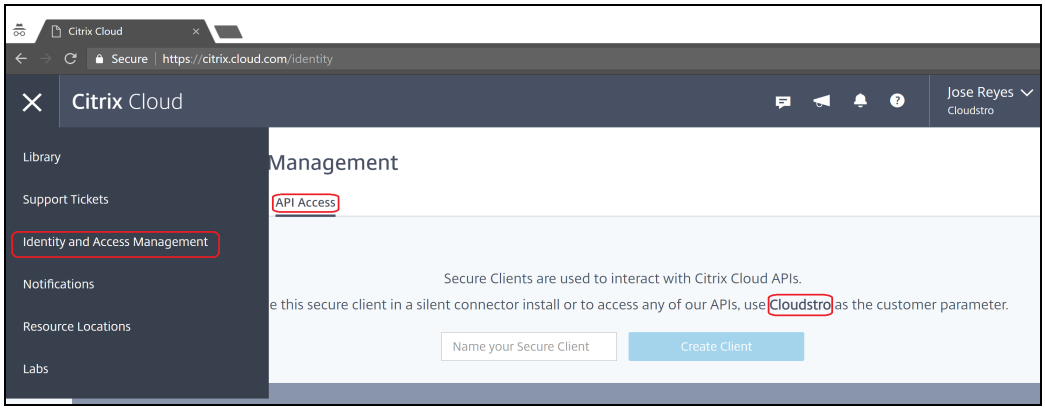


Figure 4.11: Customer ID mapped to the API client

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Desktop groups with tags	Indicates the number of desktop groups that are tagged with this tag.	Number	
Machines with tags	Indicates the number of machines that are tagged with this tag.	Number	
Application groups with tags	Indicates the number of application groups that are tagged with this tag.	Number	
Applications with tags	Indicates the number of applications to which this tag is applied.	Number	
Total objects with tags	Indicates the total number of objects that are tagged with this tag.	Number	
Unknown objects with tags	Indicates the number of unknown objects that are tagged with this tag.	Number	If a tag is applied to an object, but that object would not be visible to the calling delegated administrator via the corresponding Get-Broker* cmdlet, then the object is not counted as an object of that type, but is instead reported as an 'unknown' object.
Applications with tag restriction	Indicates the number of applications that have this tag restriction.	Number	An application group can be restricted to a single set of tagged machines. Once a tag restriction has been defined for an application group, applications within the group will only be hosted by machines with the tag. This helps administrators in managing the application launches
Entitlement policy rules with tag restriction	Indicates the number of Entitlement policy rules that are restricted with this tag.	Number	A tag may be used to restrict which machines may be made accessible to a user by an entitlement policy rule. A machine may be made accessible by an entitlement policy rule only if either

Measurement	Description	Measurement Unit	Interpretation
			the rule has no tag restriction or the rule has a tag restriction and the machine is tagged with the same tag.
Total objects with tag restriction	Indicates the total number of objects that have this tag restriction.	Number	
Reboot schedules with tag restriction	Indicates the number of reboot schedules that have this tag restriction.	Number	A restart schedule specifies when machines in a Delivery Group are periodically restarted. You can create one or more schedules for a Delivery Group. The machines are identified by a tag that you apply to the machine. This is called a tag restriction, because the tag restricts an action to only items (in this case, machines) that have the tag. For example, let's say all of your machines are in one Delivery Group. You want every machine restarted once every week, and you want the machines used by the accounting team restarted daily. To accomplish this, set up one schedule for all machines, and another schedule for only the machines in accounting.
Unknown objects with tag restriction	Indicates the number of Unknown objects that have this tag restriction.	Number	

4.2 The Infrastructures Layer

Use the test mapped to this layer to determine connectivity issues (if any) between the broker and the hosting platform.

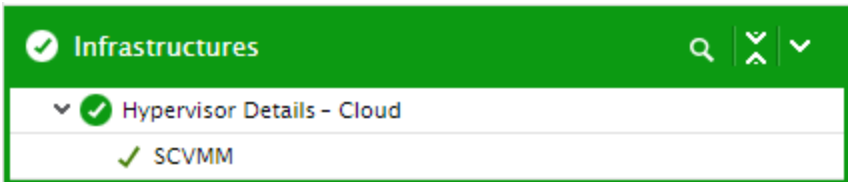


Figure 4.12: The tests mapped to the Infrastructures layer

4.2.1 Hypervisor Details - Cloud Test

This test reports the status of the connection between the cloud delivery controller in the target Site and each server that hosts the machines. In the absence of a healthy connection between the two, the controller may not be able to provision machines on-demand.

If users complaint of any delay in the servicing of their machine requests, you may want to use this test to check the connection status between the controller and the server hosting that machine, so that connection errors (if any) can be promptly detected.

Target of the test : Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each hypervisor with which the target Site communicates.

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.
Port	Refers to the port at which the specified host listens to. By default, this is 80.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the “hamburger menu” in the upper left corner of the console. ◦ Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use

Parameter	Description
	<customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.

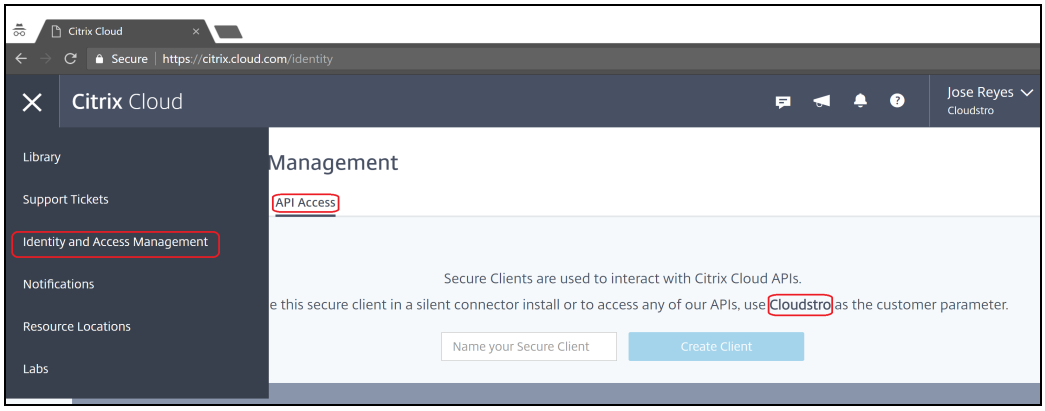


Figure 4.13: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability. • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
State of controller's connection to	Indicates the status of the connection		This test reports one of the following values to indicate the status of the connection

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td>hypervisor</td><td>between the controller and this hosting server.</td><td></td><td>between the controller and a hosting server:
On
InMaintenanceMode
Unavailable
The numeric values that correspond to the above-mentioned states are as follows:<table><tr><th>State</th><th>Numeric Value</th><th>Description</th></tr><tr><td>On</td><td>1</td><td>Indicates that the controller is in contact with the hypervisor</td></tr><tr><td>InMaintenanceMode</td><td>2</td><td>Indicates that the hosting server (e.g., XenServer, Hyper-V) through which machines are managed, is under maintenance</td></tr><tr><td>Unavailable</td><td>3</td><td>Indicates that the controller is unable to contact the hypervisor</td></tr></table>Note:
By default, this measure reports the above-mentioned States while indicating the connection status of the controller and the hypervisor. However, in the graph of this measure, the same will be represented using</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>the corresponding numeric equivalents - 1 to 3 only.

The detailed diagnosis capability of this measure if enabled, reveals the connection name, connection type, Hypervisor address, the preferred controller, the zone to which the controller belongs, and the user who is accessing the hypervisor.</td></tr>
<tr><td>Is controller's connection to hypervisor in maintenance mode?</td><td>Indicates whether the connection between the controller and the hosting server is in maintenance mode.</td><td></td><td>This measure reports a value Yes if the connection between the controller and the hosting server is in maintenance mode and No if otherwise.

The numeric values corresponding to the above-mentioned measure values are as follows:

<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table>
Note:

By default, this measure reports the above-mentioned Measure Values while indicating whether the connection between the controller and the hosting server is in maintenance mode. However, the graph of this measure will be represented using the corresponding numeric equivalents i.e., 0 or 1 only.</td></tr>
<tr><td>Is controller's connection to hypervisor in persistent?</td><td>Indicates whether/not the connection is persistent between the controller and the hosting server.</td><td></td><td>This measure reports a value Yes if the connection between the controller and the hosting server is persistent and No if otherwise.

The numeric values corresponding to the above-mentioned measure values are as follows:</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>Yes</td><td>1</td></tr>
<tr><td>No</td><td>0</td></tr>
</table>
Note:
By default, this measure reports the above-mentioned Measure Values while indicating whether the connection between the controller and the hosting server is persistent. However, the graph of this measure will be represented using the corresponding numeric equivalents i.e., 0 or 1 only.
</td></tr>
<tr><td>Is local storage caching enabled?</td><td>Indicates whether the local storage caching is enabled or not.</td><td></td><td>This measure reports a value Yes if the local storage caching capability is enabled and No if otherwise.
The numeric values corresponding to the above-mentioned measure values are as follows:
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>Yes</td><td>1</td></tr>
<tr><td>No</td><td>0</td></tr>
</table>
Note:
By default, this measure reports the above-mentioned Measure Values while indicating whether the local storage caching capability is enabled. However, the graph of this measure will be represented using the corresponding numeric equivalents i.e., 0 or 1 only.
</td></tr>
<tr><td>Is provisioning service used to create VMs?</td><td>Indicates whether/not the provisioning service is used to create provisioned</td><td></td><td>This measure reports a value Yes if the provisioning service is used to create provisioned machines and No if otherwise.
The numeric values corresponding to the</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td>machines.</td><td></td><td>above-mentioned measure values are as follows:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table>Note:
By default, this measure reports the above-mentioned Measure Values while indicating whether the provisioning service is used to create provisioned machines. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents i.e., 0 or 1 only.</td></tr>
<tr><td>Is hypervisor connection in ready state?</td><td>Indicates whether/not this connection between the hosting server and the delivery controller is ready.</td><td></td><td>The numeric values corresponding to the above-mentioned measure values are as follows:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table>Note:
By default, this measure reports the above-mentioned Measure Values while indicating whether the connection is ready between the hosting server and the delivery controller. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents only.</td></tr>
<tr><td>Machines associated with this hypervisor connection</td><td>Indicates the number of machines associated with the connection between the hosting server and the delivery controller.</td><td>Number</td><td></td></tr>
</table>

The detailed diagnosis of the *State of the controller's connection to Hypervisor* measure reveals the connection name, connection type, Hypervisor address, the preferred controller, the zone to which the controller belongs, and the user who is accessing the hypervisor.

Shows the Hypervisor connection information

CONNECTION NAME	CONNECTION TYPE	HYPERVISOR ADDRESS	PREFERRED CONTROLLER	USERNAME	SCOPES
Sep 26, 2014 10:37:33					
VMware-VC	VMWare Virtualization	https://WIN-LJ27BDNN4IQ/sdk	CITRIX\EXCL-1	administrator	-

Figure 4.14: The detailed diagnosis of the State of the controller's connection to hypervisor measure

4.3 The Controllers Layer

With the help of the tests mapped to this layer, administrators can:

- Know the number and names of controllers in the managed site and the machines managed by each controller;
- Rapidly detect the abnormal state of the Broker service and the Configuration service of the controller;
- Proactively detect bottlenecks in the login and application enumeration process;

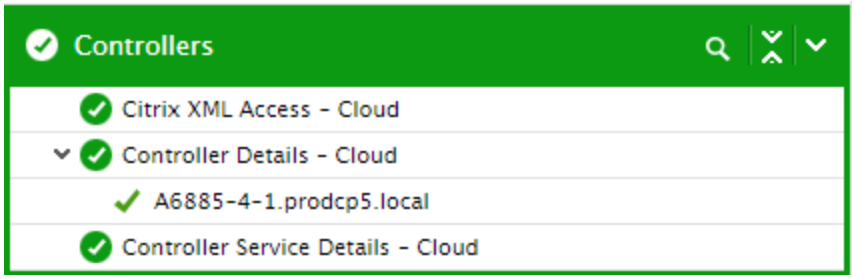


Figure 4.15: The tests mapped to the Controllers layer

4.3.1 Controller Details - Cloud Test

Controllers are server machines running instances of the delivery controller service. The delivery controller service is responsible for the delivery controllering of user sessions to desktops or applications, and for power management of the underlying machines. An operational site must contain at least one Controller.

This test auto-discovers the Delivery Controllers configured within a Citrix Cloud Site, and reports the current status of each controller and the count of machines registered with every controller.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each delivery controller operating in the Citrix cloud.

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the "hamburger menu" in the upper left corner of the console. ◦ Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in the below figure) is the customer ID you need to configure the eG tests with.

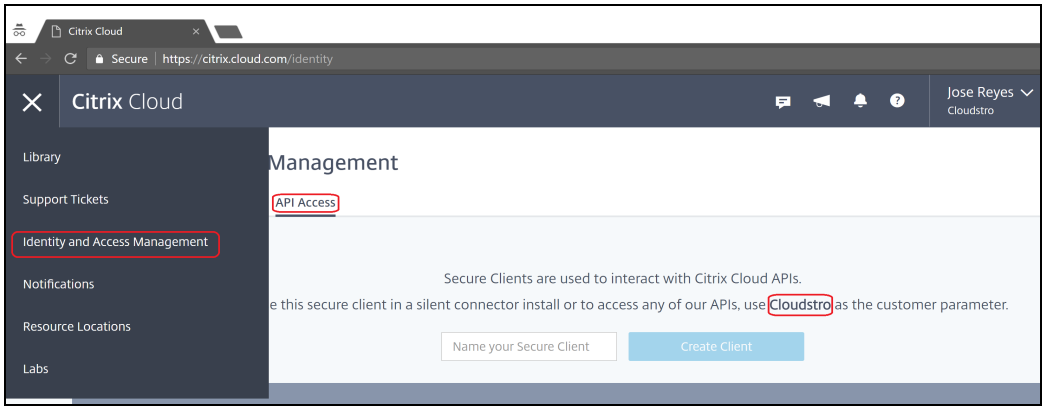


Figure 4.16: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent

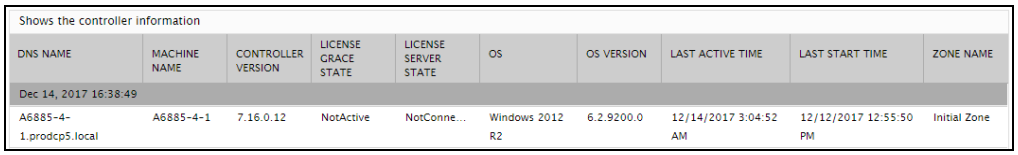
Parameter	Description
	uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Controller state	Indicates the current state of this cloud delivery controller.		This test reports one of the following values to indicate the current state of a cloud delivery controller: • **Active** – Indicates that the delivery controller is powered-on and fully operational • **On** – Indicates that the delivery controller is powered-on, but not fully operational • **Failed** – Indicates that the delivery controller has failed due to some reason • **Off** – Indicates that the delivery controller is powered-off The numeric values that correspond to

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>the above-mentioned states are as follows:
<table><tr><th>State</th><th>Numeric Value</th></tr><tr><td>Active</td><td>1</td></tr><tr><td>On</td><td>2</td></tr><tr><td>Failed</td><td>3</td></tr><tr><td>Off</td><td>4</td></tr></table>
Note:
By default, this measure reports the above-mentioned States while indicating the current state of a delivery controller. However, the graph of this measure will represent states using the corresponding numeric equivalents – i.e., 1 to 4.
The detailed diagnosis of this measure reveals when the controller was last accessed, when it was last started, the zone to which the controller belongs, and also displays the site services that were active on the controller during its last access.</td></tr>
<tr><td>Total registered machines</td><td>Indicates the number of machines that are currently registered with this delivery controller.</td><td>Number</td><td></td></tr>
</table>

Use the detailed diagnosis of the *Controller state* measure to know when the controller was last accessed, when it was last started, the zone to which the controller belongs, and the site services that were active on the controller during its last access.



Shows the controller information

DNS NAME	MACHINE NAME	CONTROLLER VERSION	LICENSE GRACE STATE	LICENSE SERVER STATE	OS	OS VERSION	LAST ACTIVE TIME	LAST START TIME	ZONE NAME
Dec 14, 2017 16:38:49									
A6885-4-1.prodcp5.local	A6885-4-1	7.16.0.12	NotActive	NotConne...	Windows 2012 R2	6.2.9200.0	12/14/2017 3:04:52 AM	12/12/2017 12:55:50 PM	Initial Zone

Figure 4.17: The detailed diagnosis of the Controller state measure

4.3.2 Controller Service Details - Cloud Test

This test auto-discovers the critical services executing on the Citrix Cloud Delivery Controller, and reports the status of each service. With the help of this test, you can promptly detect which services have failed currently.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for the monitored Site.

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ○ Sign in to the Citrix Cloud administrator console. ○ Click the “hamburger menu” in the upper left corner of the console. ○ Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in the below figure) is the customer ID you need to configure the eG tests with.

Parameter	Description

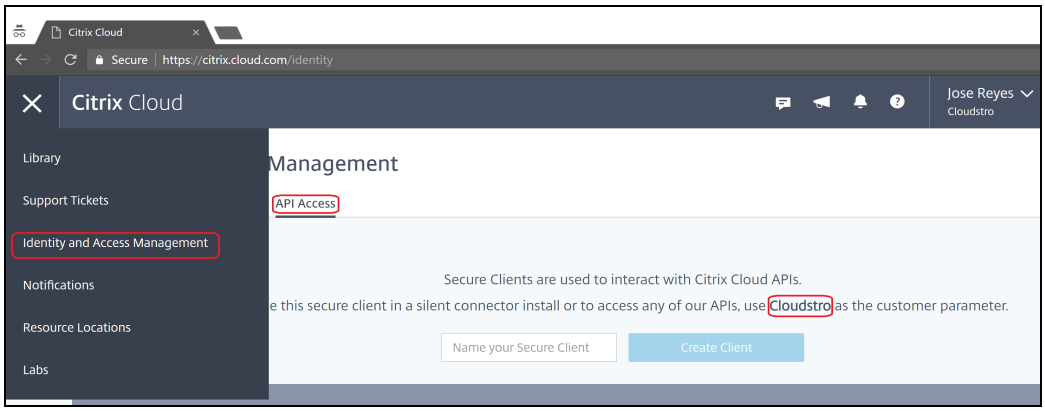


Figure 4.18: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Broker service status	Indicates the current status of the broker service.		The Citrix Broker Service brokers connections from endpoint devices to desktops and applications. The numeric values that correspond to the Measure Values that this measure can take are as follows:

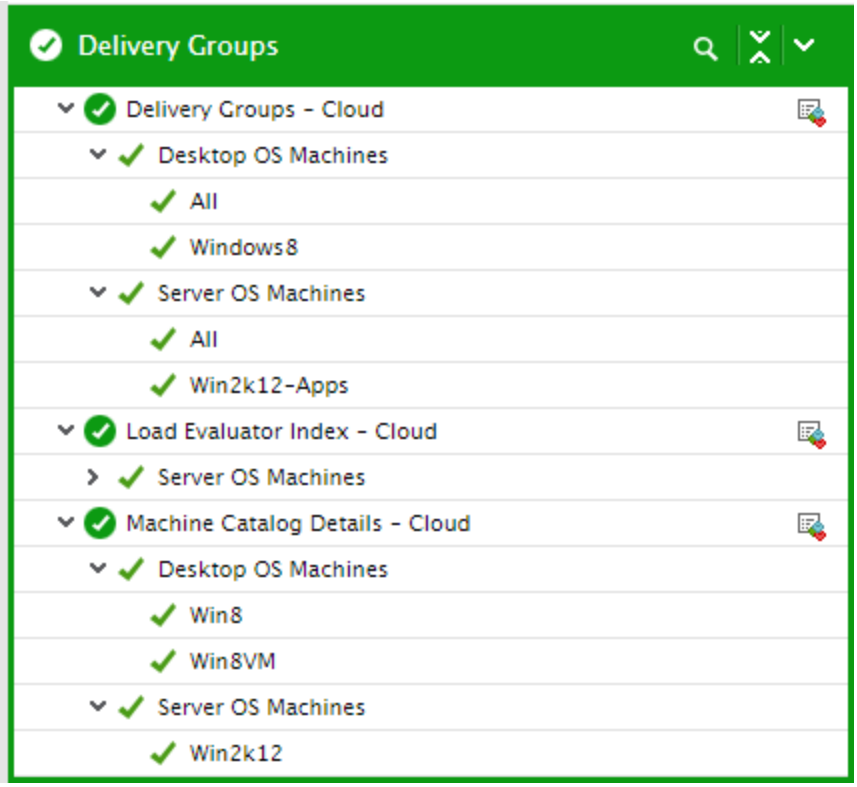
Measure Value	Numeric Value
OK	1
DBUnconfigured	2
DBRejectedConnection	3
InvalidDBConfigured	4
Electroencephalographic	5
DBOlder-	6

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>VersionThanService</td><td></td></tr>
<tr><td>DBVersionChangeInProgress</td><td>7</td></tr>
<tr><td>PendingFailure</td><td>8</td></tr>
<tr><td>Failed</td><td>9</td></tr>
<tr><td>Unknown</td><td>10</td></tr>
<tr><td>DBNotFound</td><td>11</td></tr>
<tr><td>DBMissingOptionalFeature</td><td>12</td></tr>
<tr><td>DBMissingMandatoryFeature</td><td>13</td></tr>
</table>
Note:
By default, this measure reports the above-mentioned Measure Values while indicating the current state of the broker service. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents – i.e., 1 to 13.
</td></tr>
<tr><td>Configuration service status</td><td>Indicates the current status of the Configuration Service.</td><td></td><td>The Citrix Configuration Service stores the configuration information related to Citrix services in the broker's MS SQL database.
The values that this measure can report and their corresponding numeric values are as follows:
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>OK</td><td>1</td></tr>
<tr><td>DBUnconfigured</td><td>2</td></tr>
<tr><td>DBRejectedConnection</td><td>3</td></tr>
</table>
</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>InvalidDBConfigured</td><td>4</td></tr><tr><td>DBNotFound</td><td>5</td></tr><tr><td>DBNewerVersionThanService</td><td>6</td></tr><tr><td>DBOlderVersionThanService</td><td>7</td></tr><tr><td>DBVersionChangeInProgress</td><td>8</td></tr><tr><td>Failed</td><td>9</td></tr><tr><td>Unknown</td><td>10</td></tr></table> **Note:** By default, this measure reports the above-mentioned **Measure Value**s while indicating the current status of the Configuration service. However, in the graph of this measure, the same will be represented using the corresponding numeric equivalents – i.e., 1 to 10.

4.4 The Delivery Groups Layer

The tests mapped to this auto-discover delivery groups, monitor the health of desktops in each group, and point to those desktops that are CPU-intensive, latent, erroneous, and that which take too much time to load profiles. The overall load on the delivery group and the individual machines in each group are also reported, so that overloaded groups and machines can be accurately identified. Machine catalogs are discovered, and the count and type of machines in each catalog are revealed.



4.4.1 Delivery Groups - Cloud Test

With the help of this test, you can determine the maintenance mode of each delivery group managed by the cloud delivery controller, and track the usage of desktops within each group. Unregistered desktops, CPU-intensive desktops, disconnected desktops, and desktops available to users, which are managed by this controller, can thus be quickly and accurately isolated.

Target of the test : Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each delivery group that is configured with the target Site.

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
Port	Refers to the port at which the specified host listens to. By default, this is 80.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the "hamburger menu" in the upper left corner of the console. ◦ Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.
Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Report by Machine Type	By default, this flag is set to **Yes** indicating that the individual descriptors of this test - i.e., the delivery groups- are classified based on their machine type; in other words, the delivery groups will be listed either under **Server OS Machines** or **Desktop OS Machines** based on their machine type. If you do not want to group the delivery groups based on their machine types, set this flag to **No**.
Show Total Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Total machines* measure of this test. To enable detailed diagnosis for this

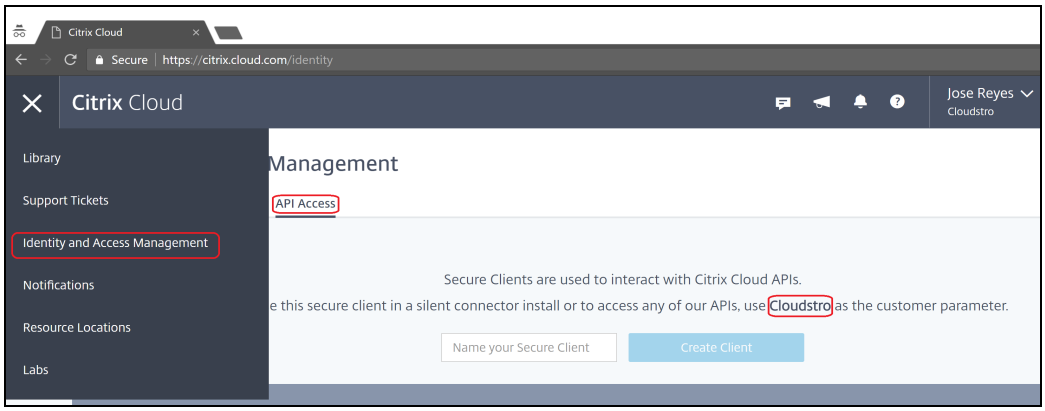


Figure 4.19: Customer ID mapped to the API client

Parameter	Description
	measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of all machines that are part of a delivery group, as part of detailed diagnostics.
Show Available Machines DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Available machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of all machines that are currently available in each delivery group managed by the Cloud Delivery Controller.
Show High Latency Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *High latency machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the high latency machines in a delivery group.
Show High Profile Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines with high profile load time* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are taking too long to load profiles.
Show High CPU Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines with high profile load time* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details those machines in the group that are taking too long to load profiles.
Show Agent Error State Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines in agent error state* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are in the agent error state.
Show Disk Image Out Of Date DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Disk image out of date* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group for which the disk image is out-dated.
Show Used Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Used machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are in use presently.
Show Suspended Machines DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines with suspended power state* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are in a suspended power state.

Parameter	Description
Show PoweredOff Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Poweredoff machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are currently powered off.
Show Unknown Power State Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines with unknown power state* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that are in an unknown power state.
Show Pending Power Action DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines with pending power actions* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that have pending power actions.
Show Machines Under Maintenance DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for the *Machines in maintenance mode* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the details of those machines in the group that have pending power actions.
Show Registered Machines DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for **Registered machines** measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines (in each delivery group) that are currently registered with the broker being monitored.
Show Powered On Machines DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Powered on machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the powered on machines in each delivery group that is managed by the broker.
Show Connection Failed Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Machines with connection failed* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines with which connection has failed.
Show Deregistered Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Machines deregistered* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the deregistered machines in the group.
Show	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be

Parameter	Description
Unregistered Machines DD	available for *Unregistered machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines in the group that are not registered with the target controller.
Show Machines With Error DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Machines with errors* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines with which connection has failed.
Show Disconnected Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for Disconnected machines measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines with which connection has failed.
Show Established Session DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Established session* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines with which connection has failed.
Show Pending Session DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Pending sessions* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the pending sessions.
Show Physical Machine DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Total physical machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the physical machines in the group.
Show Entitled Machines DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Entitled machines* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the entitled machines in the group.
Show Machines Not Entitled DD	By default, this flag is set to **No**. This implies that by default, detailed metrics will not be available for *Machines not entitled* measure of this test. To enable detailed diagnosis for this measure, you can set this flag to **Yes**. In this case, you will be able to view the complete details of the machines in the group that are not entitled.
Unused Machines In Days	In some environments, a few machines in the delivery groups may not be logged in by any user for long period of time. Even if users are not logged on, the machines continued to consume resources unnecessarily leading to resource wastage. The resources used by those machines cannot be released or allocated to other machines until the resources are properly

Parameter	Description
	released. Therefore, it is necessary for administrators to identify the machines that are not used for long period of time to avoid unnecessary resource wastage. To achieve this, administrators can use the Unused Machines In Days parameter. Administrators can specify the number of days against this parameter beyond which this test should count the machines as "unused". By default, this parameter is set to 30 days. However, administrators can override this default value depending upon their need.
DD Frequency	Refers to the frequency with which detailed diagnosis measures are to be generated for this test. The default is *1:1*. This indicates that, by default, detailed measures will be generated every time this test runs, and also every time the test detects a problem. You can modify this frequency, if you so desire. Also, if you intend to disable the detailed diagnosis capability for this test, you can do so by specifying *none* against DD frequency.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Is delivery group available?	Indicates whether this delivery group is available or not.		This measure reports the value *Yes* if a delivery group is available, and reports *No* if it is not available. The numeric values that correspond to the above-mentioned measure values are as follows:

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>Yes</td><td>1</td></tr>
<tr><td>No</td><td>0</td></tr>
</table>
Note:

By default, this measure reports the above-mentioned Measure Values while indicating the availability of the delivery group. However, in the graph of this measure, the same will be represented using the numeric equivalents – 1 and 0 only.

The detailed diagnosis of this measure if enabled, lists the name of the delivery group, the description, the zone to which the group belongs, the desktop kind, whether Secure ICA is required, the number of sessions supported, whether the machine needs to be shut down after use, Powered on status of the machine if user is assigned, Powered on status of the machine during peak period if user is assigned , the published name of the machine, the delivery type, and the AppDisk name.
</td></tr>
<tr><td>Is delivery group in maintenance mode?</td><td>Indicates whether this delivery group is in a maintenance mode or not.</td><td></td><td>Delivery groups are typically put on maintenance mode, if the connections to the machines within the group are to be temporarily stopped so that maintenance tasks are carried out.

XenDesktop has no control over delivery groups that are in maintenance mode. No user can log on to a machine in this state.

This measure reports the value Yes if a delivery group is in the maintenance</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>mode, and reports No if it is not. The numeric values that correspond to the above-mentioned Measure Values are as follows:

<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table>
Note:

By default, this measure reports the above-mentioned Measure Values while indicating the maintenance status of the desktop group. However, in the graph of this measure, the same will represent the maintenance modes using the numeric equivalents – 1 and 0 only.</td></tr>
<tr><td>Total machines</td><td>Indicates the total number of machines in this group.</td><td>Number</td><td>Use the detailed diagnosis of this measure, if enabled, to know which machines are part of the group.</td></tr>
<tr><td>Available machines</td><td>Indicates the number of machines in this delivery group that are available for a new user to connect to.</td><td>Number</td><td>Ideally, this value should be high. The detailed diagnosis of this measure if enabled, will reveal the complete details of the available desktops, such as, the desktop name, IP address, the desktop type, the catalog to which the desktop belongs, the hosting server on which the desktop operates, etc.</td></tr>
<tr><td>Used machines</td><td>Indicates the number of machines in this group that are currently used by users.</td><td>Number</td><td>The detailed diagnosis of this measure provides complete details of the machines in use such as the machine name, the IP address, the delivery group and catalog to which it belongs, the operating system it runs on and the version of the OS, the hypervisor to which the machine is connected, the user accessing the session, the name of</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			the DNS server with which it communicates, and the machine type - whether Private or Shared, the name of the controller, the location of the changes made by the user, the provisioning type of the machine, the applications that are published on the machine etc.
Percentage of used machines	Indicates the percentage of machines in this group that are currently in use by users.	Percent	Ideally, the value of this measure should be low. A value close to 100% indicates that the delivery group is about to run out of free machines. Owing to the absence of unused machines, users who have been assigned to this delivery group will be denied access to the group upon login. Moreover, high usage of a delivery group may also drain the corresponding hosting infrastructure of its physical and virtual resources.
Unused machines	Indicates the number of machines in this group that are not logged in by any user within the time period specified against the **Unused Machines In Days** parameter.	Number	The value of this measure should be zero. A non-zero value of this measure denotes that one or more machines are not logged in by any user for more than the days specified against the **Unused Machines In Days** parameter. This indicates that the resources allocated to the machines are being wasted, which may lead to resource contention if the administrators do not investigate the issue immediately.
Disconnected machines	Indicates the number of machines that are disconnected from this delivery group.	Number	The detailed diagnosis of this measure will reveal the complete details of the disconnected machines, such as, the machine name, IP address, OS type, OS version, the desktop type, the delivery group to which the machine

Measurement	Description	Measurement Unit	Interpretation
			belongs, the catalog to which the machine belongs, the hosting server on which the machine operates,the hypervisor connection, the name of the controller, location of the changes made by the user, provisioning type of this machine etc.
Machines in preparing state	Indicates the number of machines in this group that are currently preparing sessions for users.	Number	
Disk image out of date	Indicates the number of machines managed by this delivery group to which updates are currently pending.	Number	Use the detailed diagnosis of this measure , if enabled, to know which machines are awaiting updates.
Machines in maintenance mode	Indicates the number of machines in this group that are currently under maintenance.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines are in maintenance mode.
Registered machines	Indicates the number of machines that are currently registered with this delivery group.	Number	Use the detailed diagnosis of this measure , if enabled, to know which machines are currently registered with the broker.
Unregistered machines	Indicates the number of machines that are configured in this delivery group but are in an unregistered state with this controller.	Number	If a machine is in an unregistered state, it means that registration has not successfully completed for that machine. The value 0 is hence desired for this measure. In case the measure reports a non-zero value, you may want to enable the detailed diagnosis for this measure, so that you can view which machines in the group are unregistered.
Machines in agent error state	Indicates the number of machines that are in an AgentError state in this	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines in the group are in the

Measurement	Description	Measurement Unit	Interpretation
	delivery group.		AgentError state.
Machines in initializing state	Indicates the number of machines that are not registered properly with the broker although they are configured in this delivery group.	Number	
High CPU machines	Indicates the number of machines managed by this delivery group that are currently consuming CPU resources excessively.	Number	A low value is desired for this measure. Use the detailed diagnosis of this measure, if enabled, to know which machines are running CPU-intensive applications.
High latency machines	Indicates the number of machines managed by this delivery group that are currently experiencing high network latencies.	Number	A low value is desired for this measure. Use the detailed diagnosis of this measure, if enabled, to know which machines are experiencing high latencies.
Machines with high profile load time	Indicates the number of machines managed by this delivery group that are currently taking too long a time to load profiles.	Number	A low value is desired for this measure. Use the detailed diagnosis of this measure, if enabled, to know which machines are facing issues when loading profiles.
Powered on machines	Indicates the number of machines in this desktop group that are currently powered on.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines are currently powered on.
Machines with suspended power state	Indicates the number of machines in this delivery group that are currently in the Suspended state.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines are currently in the Suspended state.
Powered off machines	Indicates the number of machines in this delivery group that are currently powered off.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines are currently in the powered off.

Measurement	Description	Measurement Unit	Interpretation
Machines with unknown power state	Indicates the number of machines in the following power states: • Unavailable • Unmanaged • Unknown	Number	A low value is desired for this measure. The detailed diagnosis of this measure, if enabled, will reveal the complete details of the unavailable machines, such as, the machine name, IP address, the machine type, the delivery group and catalog to which the machine belongs, the hosting server on which the machine operates, the name of the hypervisor and the controller on which the machine operates, the user who is active on the session, the location at which the changes made by the user is stored, the provision type of the machine, and the application published on the machine, if the machine is a XenAPP server.
Machines with pending power actions	Indicates the number of machines in this delivery group on which a power action is pending.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines have pending power actions.
Machines with connection failed	Indicates the number of machines in this group to which the last connection attempt failed.	Number	A low value is desired for this measure. Use the detailed diagnosis of this measure, if enabled, to know which machines could not be connected to.
Machines with connection failed recently	Indicates the number of machines in this group to which connection attempts failed during the last measurement period.	Number	Use the detailed diagnosis of this measure to know for which machines connection attempts failed recently.
Machines deregistered	Indicates the number of machines in this group that were the last to be deregistered from this controller.	Number	The detailed diagnosis of this measure if enabled, lists the name of the machine, IP address, OS type and version, the delivery group and catalog to which the machine belongs, the desktop kind, the hosting server on which the machine operates, the hypervisor connection, the

Measurement	Description	Measurement Unit	Interpretation
			user who is currently accessing the session, name of the controller, the location of the changes made by the user, provisioning type, the applications published on the machine if the machine is a XenAPP, the reason for deregistration of the machine and the actual time of deregistration etc.
Machines deregistered recently	Indicates the number of machines in this group that deregistered from this controller during the last measurement period.	Number	The detailed diagnosis of this measure lists the name of the machine, IP address, OS type and version, the delivery group and catalog to which the machine belongs, the desktop kind, the hosting server on which the machine operates, the hypervisor connection, the user who is currently accessing the session, name of the controller, the location of the changes made by the user, provisioning type, the applications published on the machine if the machine is a XenAPP, the reason for the machine to be deregistered from the broker, the time of deregistration etc.
Machines with errors	Indicates the number of machines on which errors were detected last.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines encountered errors.
Machines found recently with errors	Indicates the number of machines on which errors were detected during the last measurement period.	Number	Use the detailed diagnosis of this measure to know which machines encountered errors recently.
Machines available in idle state, outside peak hours	Indicates the percentage of machines in this group that should be available in idle state, outside peak hours.	Percent	The value of this measure is governed by the *OffPeakBufferSizePercent*and *PeakHours* variables. The *OffPeakBufferSizePercent* is set with the PowerShell cmdlet: *Set-BrokerDesktopGroup* The*PeakHours* variable can be set using the Citrix Studio.

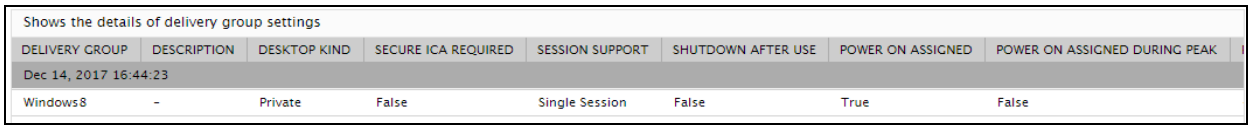
<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>Depending upon when the machines in the group are used the least and how many machines are used on an average during that period, you can tweak the above-mentioned variables.</td></tr>
<tr><td>Machines available in idle state, in peak hours</td><td>Indicates the percentage of machines in this group that should be available in idle state, during peak hours.</td><td>Percent</td><td>The value of this measure is governed by the PeakBufferSizePercent and PeakHours variables. The PeakBufferSizePercent is set with the PowerShell cmdlet: Set-BrokerDesktopGroup. The PeakHours variable can be set using the Citrix Studio.

Depending upon when the machines in the group are used the maximum and how many machines are used on an average during that period, you can tweak the above-mentioned variables. The goal is to make sure that there is no loss of productivity during peak hours due to the lack of sufficient idle machines.</td></tr>
<tr><td>Total sessions</td><td>Indicates the total number of sessions currently active on this delivery group.</td><td>Number</td><td></td></tr>
<tr><td>Total applications</td><td>Indicates the total number of applications deployed on machines in this delivery group.</td><td>Number</td><td></td></tr>
<tr><td>Is added machine turned-on?</td><td>Indicates whether/not machines should be automatically powered-on when being added to this group.</td><td></td><td>The values that this measure reports and the numeric values that correspond to them are as follows:

<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table></td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			Note: By default, this measure reports the above-mentioned **Measure Value**s while indicating whether/not the machines are to be powered-on when being added to this group. However, in the graph of this measure, the same will be represented using the numeric equivalents only.
Established sessions	Indicates the number of sessions that are currently established on the machines in this group.	Number	Use the detailed diagnosis of this measure, if enabled, to view the machines with established sessions.
Pending sessions	Indicates the number of user sessions that are pending or waiting to be established on the machines in this group.	Number	Use the detailed diagnosis of this measure, if enabled, to view the machines on which sessions are pending.
Entitled machines	Indicates the number of machines in this group that are currently assigned to users.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines in the group are assigned to users.
Machines not entitled	Indicates the number of machines in this group that are not assigned to users.	Number	Use the detailed diagnosis of this measure, if enabled, to know which machines in the group are not assigned to users.
Total physical machines	Indicates the number of physical machines in this group.	Number	Use the detailed diagnosis of this measure, if enabled, to know which are the physical machines in the group.

The detailed diagnosis of the *Is delivery group available?* measure lists the name of the delivery group, the description, the zone to which the group belongs, the desktop kind, whether Secure ICA is required, the number of sessions supported, whether the machine needs to be shut down after use, *Powered on status* of the machine if user is assigned, Powered on status of the machine during peak period if user is assigned , the published name of the machine, the delivery type, and the AppDisk name.


Shows the details of delivery group settings

DELIVERY GROUP	DESCRIPTION	DESKTOP KIND	SECURE ICA REQUIRED	SESSION SUPPORT	SHUTDOWN AFTER USE	POWER ON ASSIGNED	POWER ON ASSIGNED DURING PEAK
Dec 14, 2017 16:44:23							
Windows8	-	Private	False	Single Session	False	True	False

Figure 4.20: The detailed diagnosis of the Is delivery group available? measure

The detailed diagnosis of the *Entitled machines* measure provides the complete details of machines in the group, which have been assigned to users.


Shows the list of assigned machines

CATALOG NAME	DELIVERY GROUP NAME	DESKTOP KIND	MACHINE DNS NAME	IP ADDRESS	HOSTED MACHINE NAME	HYPERVISOR CONNECTION NAME	HOSTING SERVER NAME	OS TY
Oct 05, 2017 11:08:52								
Win8	Windows8	Static	WIN8-CTXCLOUD.Citrix.eginnovations.com	192.168.9.233	-	-	-	Windo

Figure 4.21: Detailed diagnosis of the Entitled machines measure

4.4.2 Load Evaluator Index - Cloud Test

A server's load index may be the aggregate of:

- Various computer performance counter based metrics, namely CPU, Memory and Disk Usage
- Session Count

It is designed to indicate how suitable a XenApp Worker is to receive a new user session. It is the Citrix Cloud Delivery Controller's responsibility to calculate the load index based on the aggregate of the normalized load rule indexes generated by the various load rules. As only the Delivery Controller can determine the session load, a server's overall load index is calculated on the Delivery Controller and not the Virtual Delivery Agent.

Administrators can use the **Load Evaluator Index** test to periodically evaluate the load on the servers managed by a delivery group. This is imperative to ensure that load is uniformly balanced across the servers. In addition, in times of an overload, this test can help administrators accurately identify which server is overloaded and which resource is the constraint.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every delivery group of each server OS type

First-level descriptor: Server OS type

Second-level descriptor: Delivery Group

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.
Port	Refers to the port at which the specified host listens to.
Report by Delivery Group	By default, this flag is set to **Yes** indicating that this test reports metrics for each delivery group that contains machines running a particular server OS. The delivery group-level insight into the load evaluator index enables administrators to gauge the overall load on every delivery group. If required, you can change the status of this flag to **No**; in this case, this test will report metrics for every server OS machine in a delivery group. The machine-level insight into load enables administrators to understand whether/not load is uniformly balanced across the different server OS machines, and accurately identify the machine that is overloaded.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Effective load evaluator index	Indicates the load evaluator index of this delivery group / machine.	Percent	By comparing the value of this measure across delivery groups / server OS machines, you can figure out whether or not load is uniformly balanced across all delivery groups / servers. Use the detailed diagnosis of this

Measurement	Description	Measurement Unit	Interpretation
			measure to view the complete details of the machines in a delivery group and to view the CPU, disk, memory, and session load evaluator index of each machine.
CPU load evaluator index	Indicates the CPU load evaluator index of this delivery group / server OS machine.	Percent	A high value is indicative of excessive CPU usage by the delivery group / machine over time.
Memory load evaluator index	Indicates the memory load evaluator index of this delivery group / server OS machine.	Percent	A high value is indicative of excessive memory usage by the delivery group / machine over time.
Disk load evaluator index	Indicates the disk load evaluator index of this delivery group / server OS machine.	Percent	A high value is indicative of excessive disk usage by the delivery group / machine over time.
Session load evaluator index	Indicates the session count load evaluator index of this delivery group / server OS machine.	Percent	A high value indicates that the delivery group / machine has been consistently handling many user sessions.

Use the detailed diagnosis of the Effective load evaluator index measure to know which machines are in the delivery group and the CPU, disk, memory, and session load evaluator index of each machine.

Shows the list of machines with load evaluator index details

MACHINE NAME	DNS NAME	DELIVERY GROUP	OS	OS VERSION	SESSIONS	IP ADDRESS	VD
Dec 14, 2017 16:44:57							
CITRIX\2K12R2-CTXCLOUD	2K12R2-CTXCLOUD.Citrix.eginnovations.com	Win2k12-Apps	Windows 2012 R2	Microsoft Windows NT 6.3.9600.0	2	192.168.9.236	7.1

Figure 4.22: Detailed diagnosis of the Effective Load Evsaluator Index measure

4.4.3 Machine Catalog Details - Cloud Test

In a Citrix cloud infrastructure, collections of virtual machines (VMs) or physical computers of the same type are managed as a single entity called a catalog. To deliver desktops to users, the machine administrator creates a catalog of machines and the assignment administrator allocates machines from the catalog to users by creating delivery groups.

This test auto-discovers the catalogs managed by the Citrix Cloud Site being monitored, and reports useful statistics related to each catalog, which reveal:

- The catalog type;
- The type of desktops/servers allocated to each catalog;
- The availability, usage, and assignment of desktops/servers in each catalog

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for every catalog of VMs or physical servers managed by the target Citrix Cloud Delivery Controller

First level descriptor: Machine type - i.e., Desktop OS Machines / Server OS Machines

Second-level descriptor: Catalog name

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.
Port	Refers to the port at which the specified host listens to.
Report by Machine Type	By default, this flag is set to **Yes** indicating that the individual descriptors of this test - i.e., the catalogs - are classified based on their machine type; in other words, the catalogs will be listed either under **Server OS Machines** or **Desktop OS Machines** based on their machine type. If you do not want to group the catalogs based on their machine types, set this flag to **No**.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis

Parameter	Description
	measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Allocation type	Indicates the allocation type of the machines available in this catalog.	Number	This measure can report any one of the following values: • Static • Permanent • Random • Unknown The table below provides the numeric values that correspond to the allocation types listed above, and a brief description of each type:

Allocation Type	Numeric Value	Description
Static	1	Indicates that the machines in this catalog are either assigned by the administrator or assigned on first use to users. This assignment will change only when the administrator explicitly changes the assignments.

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Allocation Type</th><th>Numeric Value</th><th>Description</th></tr>
<tr><td>Permanent</td><td>2</td><td>Indicates that the machines in this catalog are permanently assigned to the user.</td></tr>
<tr><td>Random</td><td>3</td><td>Indicates that the machines in this catalog are picked in random and are temporarily assigned to the user.</td></tr>
</table>
Note:
By default, this measure reports the Allocation Types listed in the table above. However, the graph of this measure will represent the allocation types using their corresponding numeric equivalents – i.e., 1 to 3.
The detailed diagnosis of this measure if enabled, lists the catalog to which the machine belongs, the zone to which the machine catalog belongs, the machine type, the number of sessions supported by the machine i.e, either Single session or Multi session, the location used for storing user data, the provisioning type and the scopes associated with the chosen catalog.
</td></tr>
<tr><td>Are physical machines?</td><td>Indicates whether/not the machines in this catalog are power managed by the broker.</td><td></td><td>This measure reports a value Yes if the machines are power managed by the broker and No, if otherwise.</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>The table below provides the numeric values that correspond to the above mentioned values:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Yes</td><td>1</td></tr><tr><td>No</td><td>0</td></tr></table>
Note:
By default, this measure reports whether the machines are power managed by the broker or not. However, the graph of this measure will be represented using their corresponding numeric equivalents – i.e., 0 or 1.</td></tr>
<tr><td>Entitled machines used in delivery groups</td><td>Indicates the number of assigned machines (to users) in this catalog that are within delivery groups.</td><td>Number</td><td></td></tr>
<tr><td>Entitled machines available for delivery groups</td><td>Indicates the number of machines in this catalog that are available to users within delivery groups.</td><td>Number</td><td></td></tr>
<tr><td>Machines available for delivery groups</td><td>Indicates the number of machines in this catalog that are available for inclusion in delivery groups.</td><td>Number</td><td></td></tr>
<tr><td>Machines not entitled available for delivery groups</td><td>Indicates the number of machines within the delivery groups that are not yet assigned to users.</td><td>Number</td><td></td></tr>
<tr><td>Machines not</td><td>Indicates the number of</td><td>Number</td><td></td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
entitled used in delivery groups	unassigned machines in this catalog within the delivery groups but are still used in the pool.		
Machines used in delivery groups	Indicates the number of machines in this catalog that are within delivery groups.	Number	
Total machines in catalog	Indicates the total number of machines in this catalog.	Number	

The detailed diagnosis of the *Allocation type* measure if enabled, lists the catalog to which the machine belongs, the zone to which the catalog belongs, the machine type, the number of sessions supported by the machine i.e, either Single session or Multi session, the location used for storing user data, the provisioning type and the scopes associated with the chosen catalog.

Shows the Machine Catalog details

CATALOG	DESCRIPTION	MACHINE TYPE	SESSION SUPPORT	USER DATA	PROVISIONING TYPE	PVS ADDRESS	PVS DOMAIN	SCOPES	ZONE NAME
Jan 02, 2017 18:04:23									
Win10	-	Desktop OS Machines	Single Session	On local disk	Manual	-	-	-	Primary

Figure 4.23: The detailed diagnosis of the Allocation type measure

4.5 The Applications Layer

The test mapped to this layer monitors the applications deployed on the managed site and reveals whether/not they are accessible to users. The CPU priority level of each application is also reported.

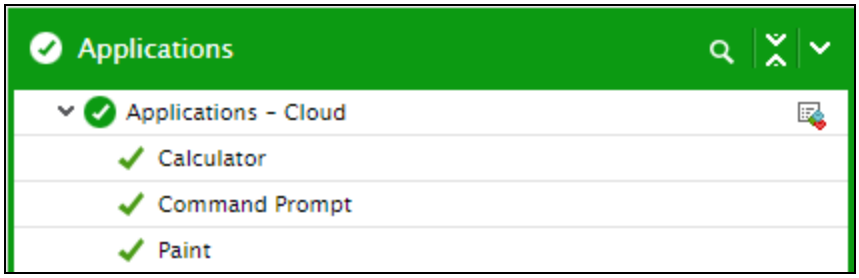


Figure 4.24: The tests mapped to the Applications layer

4.5.1 Applications - Cloud Test

With the Citrix Cloud, you provide users with access to information by publishing the following types of resources that can be virtualized on servers or desktops:

- Applications installed on servers running Delivery Controller. When users access them, the published applications appear to be running locally on client devices.
- Streamed applications installed in application profiles and stored on a file server in your App Hub. Users access the profile and virtualize the applications on their client desktops.
- Data files such as Web pages, documents, media files, spreadsheets, and URLs.
- The server desktops, so users can access all of the resources available on the server.

All these types of resources are called Published applications.

Whenever users to a virtual desktop complain that they are unable to access one/more published applications, administrators should be able to quickly troubleshoot and figure out the reason for this – is it because the application is disabled on the site? Or is it because the application is not even visible to users?

In addition, administrators should also be able to periodically check how popular an application is (in terms of usage) and accordingly reset its CPU priority level, so that such applications always command more CPU resources and users have no problems accessing or continuously using such applications.

The **Applications - Cloud** test enables users to perform these checks. This test points administrators to applications that are currently enabled on the site and those applications that are not visible to the users. In addition, this test reports the number of instances of an application that is currently running and the CPU priority level of each application, so that administrators can accurately isolate popular applications and their CPU priority level.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each published application

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the "hamburger menu" in the upper left corner of the console. ◦ Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.

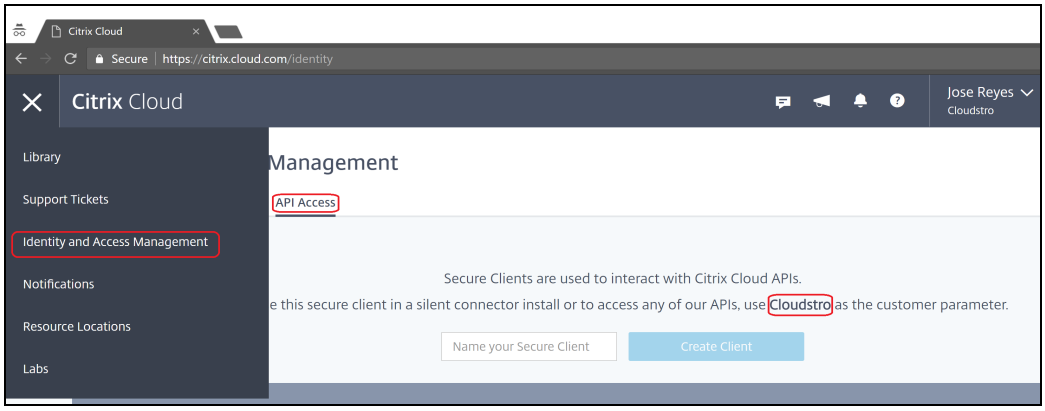


Figure 4.25: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the

Parameter	Description
	detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Is application enabled?	Indicates whether/not this application is enabled on the controller.		The values that this measure reports and their corresponding numeric values are: Measure Value / Numeric Value No / 0 Yes / 1 **Note:** By default, this measure reports the values *Yes* or *No* while indicating whether the application is enabled or not. However, the graph of this measure will represent the same using the corresponding numeric equivalents of 0 and 1 only. The detailed diagnosis of this measure if enabled, lists the name and type of the application, the location of the program file, the working directory and the tag applied to the application.
Is application visible to users?	Indicates whether/not this application is visible to the		The values that this measure reports and their corresponding numeric values

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td>users.</td><td></td><td>are:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:
By default, this measure reports the values Yes or No while indicating whether the application is available to users. However, the graph of this measure will represent the same using the corresponding numeric equivalents of 0 and 1 only.</td></tr>
<tr><td>Instances currently running</td><td>Indicates the number of instances of this application that are currently running.</td><td>Number</td><td>Comparing the value of this measure across all the applications will help you to identify the application that is most often used by the users.
The detailed diagnosis of this measure if enabled, lists the name of the application, the application type, the name of the catalog and delivery group to which the machine belongs, the zone to which the delivery group belongs, the machine ID, the user accessing the application, the client name and IP address, the protocol used for establishing the session, the start time of the session, the number of sessions – if the session is a Single session or a Multiple session etc.</td></tr>
<tr><td>CPU priority level</td><td>Indicates the priority level that is set for the resource usage of this application.</td><td></td><td>The values that this measure can report and their corresponding numeric values are:</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>Low</td><td>0</td></tr><tr><td>Below Normal</td><td>1</td></tr><tr><td>Normal</td><td>2</td></tr><tr><td>Above Normal</td><td>3</td></tr><tr><td>High</td><td>4</td></tr></table> **Note:** By default, this measure reports the above mentioned values while indicating the priority level with which the application has to be processed. However, the graph of this measure will represent the same using the corresponding numeric equivalents only.

The detailed diagnosis of the *Is application enabled?* measure lists the name and type of the application, the location of the program file, the working directory and the tag applied to the application.

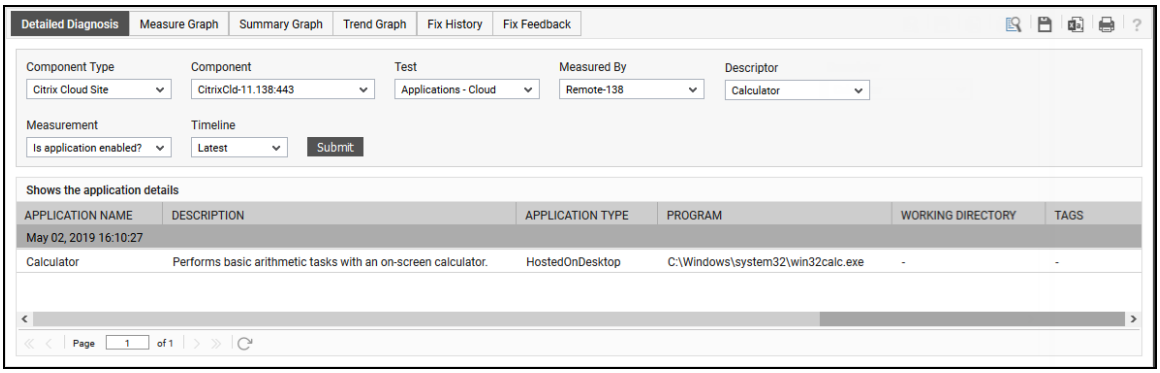


Figure 4.26: The detailed diagnosis of the Is application enabled? measure

The detailed diagnosis of the *Instances currently running* measure lists the name of the application, the name of the application, the application type, the name of the catalog and delivery group to which the machine belongs to, the machine ID, the user accessing the application, the client name and IP

address, the protocol used for establishing the session, the start time of the session, the number of sessions – if the session is a Single session or a Multiple session etc.

Shows the running application details

APPLICATION NAME	APPLICATION TYPE	PROGRAM	WORKING DIRECTORY	NO OF INSTANCE	MACHINE NAME	HOSTED MACHINE NAME	DELIVER
Dec 14, 2017 16:44:07							
Calculator	HostedOnDesktop	C:\Windows\system32\calc.exe	-	1	CITRIX\2K12R2-CTXCLOUD	-	Win2k1

Figure 4.27: The detailed diagnosis of the Instances currently running measure

4.5.2 Applications Groups - Cloud Test

Application Groups let you manage collections of applications. You can create Application Groups for applications shared across different Delivery Groups or used by a subset of users within Delivery Groups. Application Groups are optional; they offer an alternative to adding the same applications to multiple Delivery Groups. Delivery Groups can be associated with more than one Application Group, and an Application Group can be associated with more than one Delivery Group.

Using Application Groups, you can provide application management and resource control advantages over using more Delivery Groups:

- The logical grouping of applications and their settings lets you manage those applications as a single unit. For example, you don't have to add (publish) the same application to individual Delivery Groups one at a time.
- Session sharing between Application Groups can conserve resource consumption. In other cases, disabling session sharing between Application Groups may be beneficial.
- You can use the tag restriction feature to publish applications from an Application Group, considering only a subset of the machines in selected Delivery Groups. With tag restrictions, you can use your existing machines for more than one publishing task, saving the costs associated with deploying and managing additional machines. A tag restriction can be thought of as subdividing (or partitioning) the machines in a Delivery Group. Using an Application Group or desktops with a tag restriction can be helpful when isolating and troubleshooting a subset of machines in a Delivery Group.

Whenever users to a virtual desktop complain that they are unable to access an application, administrators should be able to quickly figure out whether/not that application is part of an application group. If it is, then the administrator should also be able to rapidly isolate the reason for the inaccessibility – is it because the application group is disabled? is it because the session-sharing is not enabled for applications in that application group? is it because the user is not allowed access to the application group? or is it because a tag restriction restricts user access to the application in question? The **Application Groups - Cloud** test enables users to perform these checks.

This test auto-discovers the application groups in the cloud site, and points administrators to the application groups that are currently enabled and those application groups that shared sessions with other application groups. In addition, this test reports the total number of applications in each application group and the number of machines (across all desktop groups) on which the application groups are published. In the process, this test also reveals the count of machines that are tagged with the tag given by the RestrictToTag property. Knowing the machines with tag restrictions, administrators can plan on using the existing machines for more than one publishing task, and thus saving the costs associated with deploying and managing additional machines.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each application group that is to be 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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ◦ Sign in to the Citrix Cloud administrator console. ◦ Click the “hamburger menu” in the upper left corner of the console. ◦ Select “Identity and Access Management” from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.

Parameter	Description

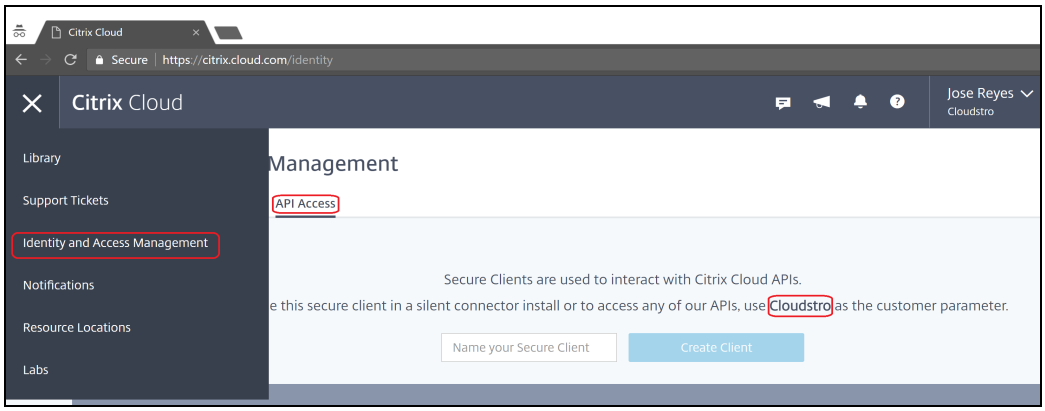


Figure 4.28: Customer ID mapped to the API client

Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv**.here.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Is application group enabled?	Indicates whether/not this application group is enabled.		The values that this measure reports and their corresponding numeric values are:

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td></td><td></td><td>
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, this measure reports the values Yes or No while indicating whether the application is enabled or not in this site. However, the graph of this measure will represent the same using the corresponding numeric equivalents of 0 and 1 only.
The detailed diagnosis of this measure if enabled, lists the tags and restricted tag applied to the application groups.
</td></tr>
<tr><td>Is session sharing enabled?</td><td>Indicates whether the applications in this application group can share sessions with applications in other application groups (or with applications that are not a member of an application group).</td><td></td><td>The values that this measure reports and their corresponding numeric values are:
<table>
<tr><th>Measure Value</th><th>Numeric Value</th></tr>
<tr><td>No</td><td>0</td></tr>
<tr><td>Yes</td><td>1</td></tr>
</table>
Note:
By default, this measure reports the values Yes or No while indicating whether/not the SessionSharingEnabled property is enabled for each application group. However, the graph of this measure will represent the same using the corresponding numeric equivalents only.</td></tr>
<tr><td>Is single application per session?</td><td>Indicates whether/not SingleAppPerSession</td><td></td><td>The values that this measure reports and their corresponding numeric</td></tr>
</table>

<table>
<tr><th>Measurement</th><th>Description</th><th>Measurement Unit</th><th>Interpretation</th></tr>
<tr><td></td><td>property is enabled.</td><td></td><td>values are:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:
By default, this measure reports the values Yes or No while indicating whether the SingleAppPerSession property is enabled or not. However, the graph of this measure will represent the same using the corresponding numeric equivalents only.
Note that, to enable the SingleAppPerSession property, you must set SessionSharingEnabled property to No. The two properties must not be enabled at the same time. The SessionSharingEnabled parameter refers to sharing sessions between Application Groups.</td></tr>
<tr><td>Is user filter enabled?</td><td>Indicates whether the user filter is enabled in this application group.</td><td></td><td>The values that this measure can report and their corresponding numeric values are:
<table><tr><th>Measure Value</th><th>Numeric Value</th></tr><tr><td>No</td><td>0</td></tr><tr><td>Yes</td><td>1</td></tr></table>
Note:
By default, this measure reports the above mentioned values while indicating the priority level with which</td></tr>
</table>

Measurement	Description	Measurement Unit	Interpretation
			the application has to be processed. However, the graph of this measure will represent the same using the corresponding numeric equivalents only. By enabling the filter, you can restrict users who can use the applications in the Application Group.
Total applications	Indicates the total number of applications in this application group.	Number	The detailed diagnosis of this measure lists the name of the application, the name of the application group to which the application belongs to, the delivery group to which the applications is associated with, the tag, the machine name and the user who is currently accessing the application.
Total machines	Indicates the total number of machines (across all desktop groups) on which this application group is published.	Number	
Total machines with tags	Indicates the number of machines across all desktop groups on which this application group is published, and which are tagged.	Number	Tags are strings that identify items such as machines, applications, desktops, Delivery Groups, Application Groups, and policies. After creating a tag and adding it to an item, you can tailor certain operations to apply to only items that have a specified tag.
Total machines with tag restriction	Indicates the number of machines across all desktop groups on which the application group is published, and which are tagged with the tag given by the RestrictToTag property.	Number	Publish applications from an Application Group or specific desktops from a Delivery Group, considering only a subset of the machines in selected Delivery Groups. This is called a tag restriction. With tag restrictions, you can use your existing machines for more than one

Measurement	Description	Measurement Unit	Interpretation
			publishing task, saving the costs associated with deploying and managing additional machines. A tag restriction can be thought of as subdividing (or partitioning) the machines in a Delivery Group.

The detailed diagnosis of the *Is application group enabled?* measure lists the tag and restricted tag applied to the application groups.

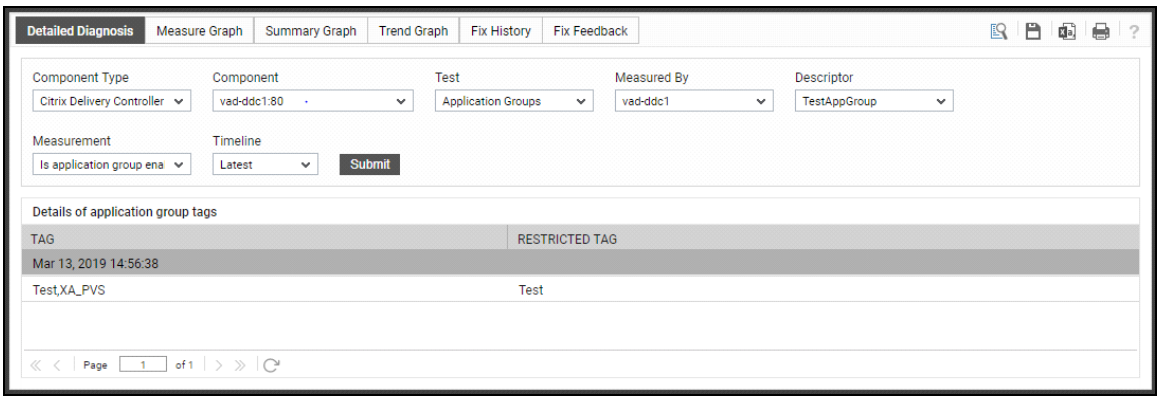


Figure 4.29: The detailed diagnosis of the Is application group enabled? measure

The detailed diagnosis of the *Total applications* measure lists the name of the application, the name of the application group to which the application belongs to, the delivery group to which the applications is associated with, the tag, the machine name and the user accessing the application.

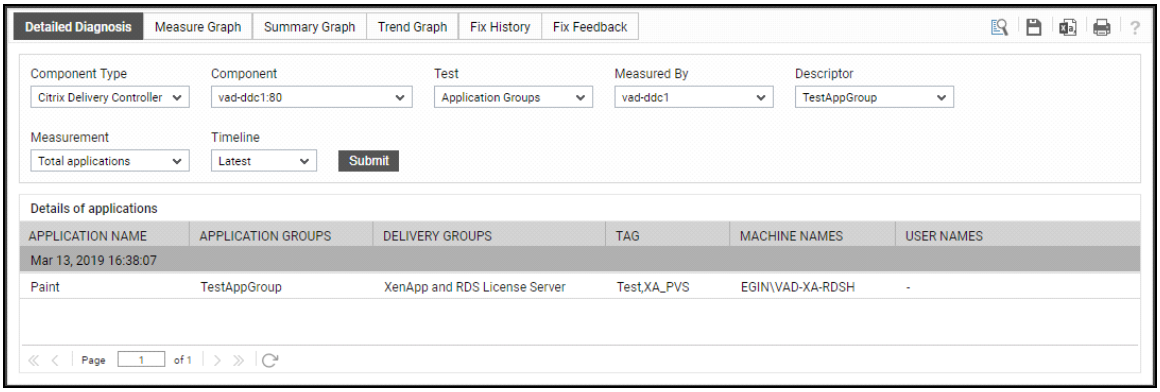


Figure 4.30: The detailed diagnosis of the Total applications measure

4.6 The Users Layer

The tests mapped to this layer track the HDX and RDP sessions on the controller, and report the count of sessions of each type and their status. In addition, for each session type, the tests report the total number of new sessions and the count of sessions that are logging out.

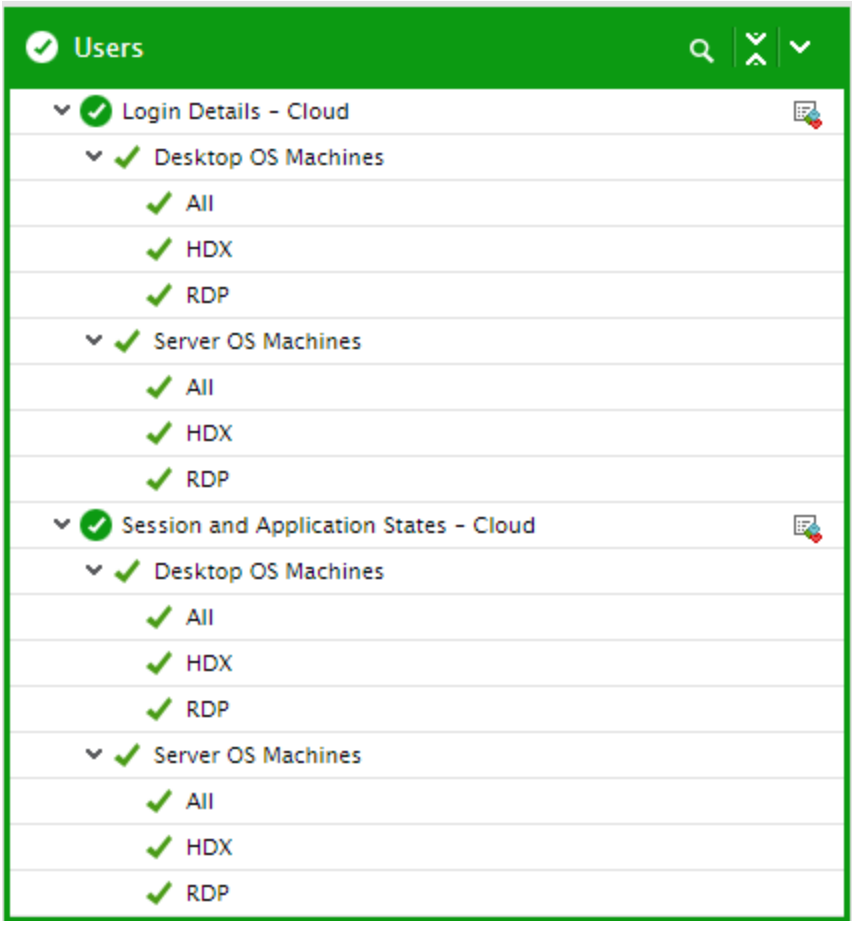


Figure 4.31: The tests mapped to the Users layer

4.6.1 Session and Application States - Cloud Test

In the event of a session overload on the Citrix Cloud, administrators may want to know the type of sessions that may have contributed to the overload – HDX sessions? or RDP sessions? This can be determined using the **Session and Application States** test. For every type of session (HDX and RDP) on the controller, this test reports the total session count and the status of the sessions.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each session type; an *All* descriptor also appears, which reports aggregated metrics across all session types.

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: ○ Sign in to the Citrix Cloud administrator console. ○ Click the "hamburger menu" in the upper left corner of the console. ○ Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in the below figure) is the customer ID you need to configure the eG tests with.
Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you

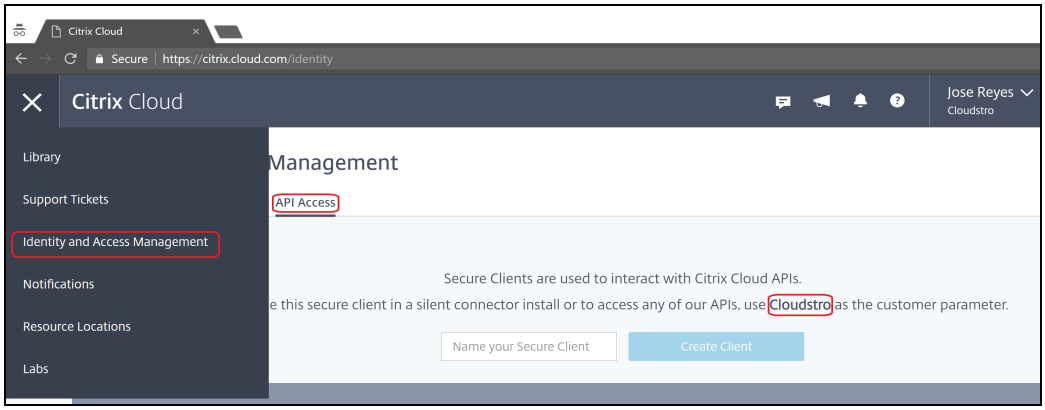


Figure 4.32: Customer ID mapped to the API client

Parameter	Description
	will have to configure this test with the full path to the **secureclient.csv**.here.
Report by Machine Type	By default, this flag is set to **Yes** indicating that the individual descriptors of this test - i.e., the catalogs - are classified based on their machine type; in other words, the catalogs will be listed either under **Server OS Machines** or **Desktop OS Machines** based on their machine type. If you do not want to group the catalogs based on their machine types, set this flag to **No**.
Show Desktop Session DD	By default, this flag is set to **No**. This means that, by default, this test does not report detailed metrics for its *Desktop sessions* measure. If you want to know more details about the desktop sessions on the controller, enable detailed diagnostics collection for the *Desktop sessions* measure by setting this flag to **Yes**.
Show Mobile Session DD	By default, this flag is set to **No**. This means that, by default, this test does not report detailed metrics for its *Mobile sessions* measure. If you want to know more details about the mobile sessions on the controller, enable detailed diagnostics collection for the *Mobile sessions* measure by setting this flag to **Yes**.
DD Frequency	Refers to the frequency with which detailed diagnosis measures are to be generated for this test. The default is *1:1*. This indicates that, by default, detailed measures will be generated every time this test runs, and also every time the test detects a problem. You can modify this frequency, if you so desire. Also, if you intend to disable the detailed diagnosis capability for this test, you can do so by specifying *none* against DD frequency.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Total sessions	Indicates the total number	Number	This is a good indicator of the session

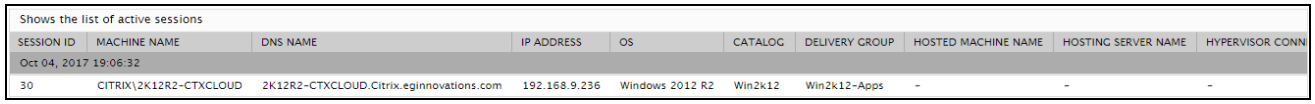
Measurement	Description	Measurement Unit	Interpretation
	of user sessions.		load on the controller. If a consistent increase is observed in the value of this measure for the All descriptor, it could hint at a potential overload condition. In such situations, you can compare the value of this measure across session types to figure out which type of session is high on the controller – HDX or RDP?
Active sessions	Indicates the number of user sessions of this type that are currently active on the controller.	Number	A consistent zero value could indicate a connection issue. For details of the currently active sessions, use the detailed diagnosis of this measure.
Connected sessions	Indicates the number of sessions of this type that are currently connected.	Number	The detailed diagnosis of this measure if enabled, lists the Session ID, the name of the machine, the name of the catalog and delivery group to which the machine belongs, the zone to which the catalog belongs, the server on which the machine is hosted, the hypervisor name, the user who is active on the session, the protocol used for connecting to the session, the Client IP and version, the state of the session, the time for which the session is connected, the time at which the state of the session changed, the start time of the session, the controllering time, the number of session supported – whether single session or multiple session, the applications that are currently in use if the machine in operation is a XenApp etc.
Disconnected sessions	Indicates the number of sessions of this type that are currently disconnected.	Number	If all the current sessions suddenly log out, it indicates a problem condition that requires investigation. The

Measurement	Description	Measurement Unit	Interpretation
			detailed diagnosis of this measure lists the sessions that were logged out.
Reconnecting sessions	Indicates the number of sessions of this type that are reconnecting soon after a disconnect.	Number	The detailed diagnosis of this measure lists the sessions that reconnected soon after a disconnect.
Preparing sessions	Indicates the number of sessions of this type that are currently in the Preparing state.	Number	The detailed diagnosis of this measure lists the sessions that are currently in the Preparing state.
Non-brokered sessions	Indicates the number of user sessions of this type that were not brokered by the machines managed by this controller.	Number	The detailed diagnosis of this measure lists the sessions that were not brokered by the machines managed by this controller.
Unknown sessions	Indicates the number of sessions of this type that are currently in Unknown state.	Number	The detailed diagnosis of this measure lists the sessions that are currently in Unknown state.
Other sessions	Indicates the number of sessions of this type that are currently in Other state.	Number	The detailed diagnosis of this measure lists the sessions that reconnected soon after a disconnect.
Hidden sessions	Indicates the number of sessions of this type that are currently hidden.	Number	The detailed diagnosis of this measure lists the sessions that are currently hidden.
Autonomously brokered sessions	Indicates the number of sessions of this type that are brokered without the use of this controller.	Number	The detailed diagnosis of this measure lists the sessions that are autonomously brokered.
Pre-logon	Indicates the number of applications that are in pre-logon state for the sessions of this type.	Number	**This measure is only applicable for Server OS Machines descriptor.** Use the detailed diagnosis of this measure to know which applications are in the pre-logon state.

Measurement	Description	Measurement Unit	Interpretation
Pre-launched	Indicates the number of applications for which sessions of this type are prelaunched.	Number	**This measure is only applicable for Server OS Machines descriptor.** The session prelaunch enables all or specified users access applications quickly, by starting sessions before they are requested. The session will wait for a user, and when the user starts an application prelaunched session is replaced with a regular session. Use the detailed diagnosis of this measure to know which applications are in the pre-launched state.
Active applications	Indicates the number of applications that are currently running in the sessions of this type.	Number	**This measure is only applicable for Server OS Machines descriptor.** Use the detailed diagnosis of this measure to know which are the active applications.
Lingering	Indicates the number of sessions of this type that are in active state even after the applications are closed.	Number	**This measure is only applicable for Server OS Machines descriptor.** Use the detailed diagnosis of this measure to know which sessions are active even after the applications are closed.
No applications	Indicates the number of sessions of this type that are active without any application launch.	Number	**This measure is only applicable for Server OS Machines descriptor.** Use the detailed diagnosis of this measure to know which sessions are active without any application launch.
Desktop sessions	Indicates the number of active desktop sessions of this type.	Number	Use the detailed diagnosis of this measure, if enabled, to view the active desktop sessions.
Mobile sessions	Indicates the number of active mobile sessions of this type.	Number	Use the detailed diagnosis of this measure, if enabled, to view the active mobile sessions.

Measurement	Description	Measurement Unit	Interpretation
Anonymous users	Indicates the number of sessions established anonymously (without user credentials); in this case a temporary local user account on the machine is used.	Number	

For details of the currently active sessions, use the detailed diagnosis of the *Active sessions* measure. This provides the complete details of every active session on the controller. The details include: the session ID, the machine from which the session was launched and the endpoint of the session, the delivery group to which the machine belongs, the hypervisor used, the IP address of the NetScaler and StoreFront used for the session, and the time taken to broker and to establish the session. This way, administrators can quickly isolate that session that took the longest to broker or establish.


Shows the list of active sessions

SESSION ID	MACHINE NAME	DNS NAME	IP ADDRESS	OS	CATALOG	DELIVERY GROUP	HOSTED MACHINE NAME	HOSTING SERVER NAME	HYPERVISOR CONN
Oct 04, 2017 19:06:32									
30	CITRIX\2K12R2-CTXCLOUD	2K12R2-CTXCLOUD.Citrix.eginnovations.com	192.168.9.236	Windows 2012 R2	Win2k12	Win2k12-Apps	-	-	-

Figure 4.33: The detailed diagnosis of the Active sessions measure

4.6.2 Login Details - Cloud Test

For every type of session (HDX and RDP) that is established on the controller, this test reports the total number of new sessions and the count of sessions that are logging out.

Target of the test : A Citrix Cloud Site

Agent deploying the test : A remote agent

Outputs of the test : One set of results for each session type; an *All* descriptor also appears, which reports aggregated metrics across all session types.

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.
Port	Refers to the port at which the specified host listens to.
Customer ID	When configuring the Citrix Cloud service, you should have created an API client on the cloud, so that any external program can communicate with the cloud. This API client is tied to a customer ID. The Citrix Cloud API requires this customer ID, when calling REST APIs. To get the customer ID for the API client that you have created in your environment, do the following: • Sign in to the Citrix Cloud administrator console. • Click the "hamburger menu" in the upper left corner of the console. • Select "Identity and Access Management" from the drop-down menu. An API Access page (see Figure 1) will open in the right panel. Look for the phrase , "use <customerID> as the customer parameter" in the right panel. The <customerID> displayed within that phrase (as highlighted in Figure 1) is the customer ID you need to configure the eG tests with.
Secure Client File Path	When creating the API client on the cloud, you will be provided with an ID and a Secret for your client. Downloading this information saves a file named **secureclient.csv**. The eG agent uses the ID and Secret stored in this file to connect to the Citrix Cloud API. This is why, you will have to configure this test with the full path to the **secureclient.csv** here.
Report by Machine Type	By default, this flag is set to **Yes** indicating that the individual descriptors of this test - i.e., the catalogs - are classified based on their machine type; in other words, the catalogs will be listed either under **Server OS Machines** or **Desktop OS Machines** based on their machine type. If you do not want to group the catalogs based on their machine types, set this flag to **No**.
DD Frequency	Refers to the frequency with which detailed diagnosis measures are to be generated for this test. The default is *1:1*. This indicates that, by default, detailed measures will be generated every time this test runs, and also every time the test detects a problem. You can modify this

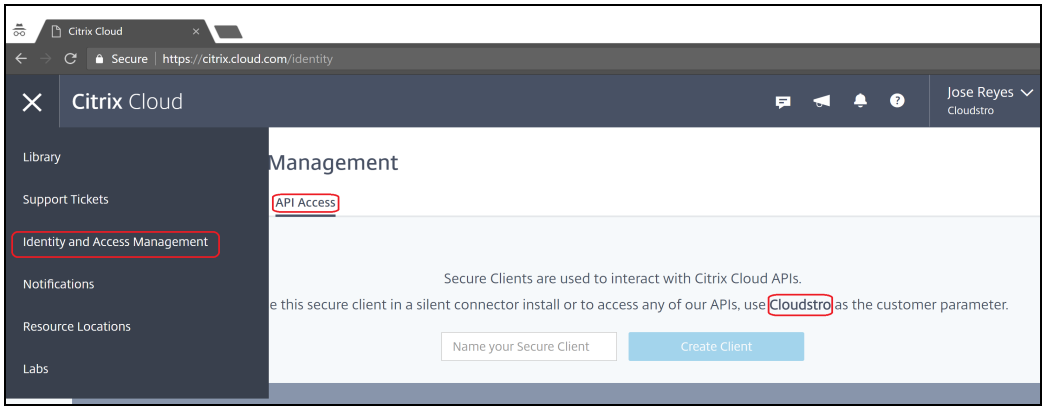


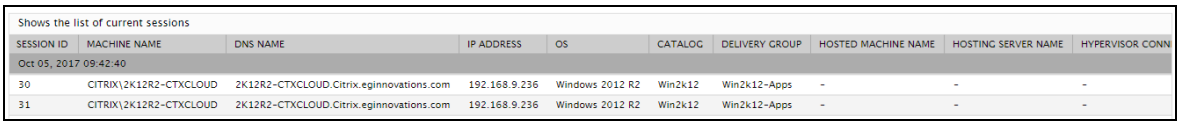
Figure 4.34: Customer ID mapped to the API client

Parameter	Description
	frequency, if you so desire. Also, if you intend to disable the detailed diagnosis capability for this test, you can do so by specifying *none* against DD frequency.
Detailed Diagnosis	To make diagnosis more efficient and accurate, the eG Enterprise suite embeds an optional detailed diagnostic capability. With this capability, the eG agents can be configured to run detailed, more elaborate tests as and when specific problems are detected. To enable the detailed diagnosis capability of this test for a particular server, choose the **On** option. To disable the capability, click on the **Off** option. The option to selectively enable/disable the detailed diagnosis capability will be available only if the following conditions are fulfilled: • The eG manager license should allow the detailed diagnosis capability • Both the normal and abnormal frequencies configured for the detailed diagnosis measures should not be 0.

Measurements made by the test

Measurement	Description	Measurement Unit	Interpretation
Current sessions	Indicates the current number of user sessions of this type on the controller.	Number	This count includes both the currently active sessions and inactive sessions. To know which sessions are active and which are inactive, use the detailed diagnosis of this measure.
New sessions	Indicates the number of sessions of this type that have been established newly on the controller.	Number	A consistent zero value could indicate a connection issue.
Percent new sessions	Indicates the percentage of current sessions of this type that were established on the controller during the last measurement period.	Percent	
Sessions logging out	Indicates the number of sessions of this type that logged out of the controller.	Number	If all the current sessions suddenly log out, it indicates a problem condition that requires investigation. The detailed diagnosis of this measure lists the sessions that were logged out.

For details of the current sessions, use the detailed diagnosis of the *Current sessions* measure. This provides the complete details of every session on the controller. The details include: the session ID, the machine from which the session was launched and the endpoint of the session, the delivery group to which the machine belongs, the hypervisor used, the IP address of the NetScaler and StoreFront used for the session, the state of each sessions, and the time taken to broker and to establish the session. This way, administrators can quickly isolate that session that took the longest to broker or establish. Inactive/disconnected sessions can also be so identified.



Shows the list of current sessions

SESSION ID	MACHINE NAME	DNS NAME	IP ADDRESS	OS	CATALOG	DELIVERY GROUP	HOSTED MACHINE NAME	HOSTING SERVER NAME	HYPERVISOR CONN
Oct 05, 2017 09:42:40									
30	CITRIX\2K12R2-CTXCLOUD	2K12R2-CTXCLOUD.Citrix.eginnovations.com	192.168.9.236	Windows 2012 R2	Win2k12	Win2k12-Apps	-	-	-
31	CITRIX\2K12R2-CTXCLOUD	2K12R2-CTXCLOUD.Citrix.eginnovations.com	192.168.9.236	Windows 2012 R2	Win2k12	Win2k12-Apps	-	-	-

Figure 4.35: The detailed diagnosis of the Current sessions measure

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.

To learn more visit www.eginnovations.com.

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To contact eG Innovations sales team, email sales@eginnovations.com.