Troubleshooting Wonderware Information Server (WIS) Part Four: Client License Release

Introduction

This troubleshooting guide is the fourth in a projected series.

This Tech Note discuss the license release issue [WIS Client License cannot be released after IE Session is timed out].

The Wonderware License Release Mechanism interacts extensively with Windows Security on IIS and COM+ components. Strict security rules on the WIS Server can cause various session license release problems.

Application Versions

- WIS 4.0 and later
- Windows 2003 Server SP2 (Scenarios 1 and 2)
  - IIS 6.x
- Windows 2008 Server all editions (Scenario 2)
  - IIS 7.x

Analysis

When you access the WIS Home page successfully, an IE (Internet Explorer) Session is created and this IE Session consumes one WIS client license. When the IE Session ends, the consumed client license is released back to the License Pool. You can end the WIS session in any of the following ways:

- IE Session times out due to inactivity after a pre-defined period in IIS.
- Closing WIS by closing the browser or by selecting **File/Exit** in the main IE menu.
- Clicking the Log off Link on the WIS Home page.

The WIS Client License Release issue is usually caused by the first two events. When either of the first two events happens, **IIS will base on its internal Session ID Pool to raise a callback function which gives the Web Application (WIS) an opportunity to release the ended session's resources. In WIS, we use this opportunity to release the consumed client license.**

Wonderware Technical Support has identified two troubleshooting scenarios.

- **DCOM Error:** Failed to Impersonate the Anonymous User
- **No DCOM Error but Failed to Call One of the WIS COM+ Components During the License Release Process**

Note: Before proceeding with the following scenarios, apply the following Microsoft Hot Fix (MS HF) for Windows 2003 SP2 on the WIS Server machine. Click the following link: [http://support.microsoft.com/default.aspx?scid=kb;EN-US;934903](http://support.microsoft.com/default.aspx?scid=kb;EN-US;934903). Then go to Verify the License Release.

Scenario: DCOM Error: "Failed to impersonate the Anonymous User..."

In this scenario, you see a lot of DCOM errors from the Event Viewer for **Applications**. The full error message is shown below:

Failed to impersonate the Anonymous User for ASP Application /LM/W3SVC/1/Root/Wonderware. Global.ASA OnEnd routines will not be executed.

Note: Impersonation means that the currently executing thread will run as a different identity than the process identity. Thus, if you impersonate the Anonymous user (IUSR_<MachineName>), the current thread will be that user, but the process (w3wp.exe at here) is still running as the account the process was started with.

The message means that IIS tried to access the web page /[Wonderware] /global.asa on the function **Session_OnEnd()** in order to clean up the (ended) session's resources.

Because the session has already ended, all the runtime security contexts with this session cannot be retrieved, so IIS uses a windows Anonymous account called **IUSR_MachineName** to release the resources.

Cause Analysis

In Windows 2003, the IIS installation creates two anonymous users, **IUSR_<MachineName>** and **IWAM_<MachineName>**. They are stored in two places: the **IIS metabase** and **Windows Local Users**.

If the password at the two places are not identical, anonymous authentication fails and generates the DCOM Error.

The password has to be same in the two places. This is what we need to work on for Scenario one (IIS Anonymous Password Rule). The following list provides ways to fix the DCOM Error in different situations.

Note: You must have the Admin privileges to complete the following tasks.

Scenario Solution

Before proceeding, do an IIS 6.0 Backup. See [http://support.microsoft.com/kb/324277](http://support.microsoft.com/kb/324277) for the detailed procedure.

Quick Fix
It is common for a company to apply the same IIS template on different WIS nodes, at multiple sites. This approach can save some IIS setting-time but it is also one of the root causes of the DCOM Error. Per the Password Rule mentioned above, when IIS tries to callback on Session_OnEnd(), Windows finds that the password between IIS Metabase and SAM database is not synchronized and generates the DCOM Error.

To apply the Quick Fix

1. Delete both `IUSR_<MachineName>` and `IWAM_<MachineName>` from the Local Users list (Figure 1 below).

2. Then, run the `iisreset` command from a DOS window.

   `cmd> iisreset`

   The `iisreset` command creates the new `IUSR_<MachineName>` and `IWAM_<MachineName>` in the Local Users list, and then sync the passwords automatically.

3. Check to see whether the WIS license was released successfully or not. See the Verify License Release section for details.

Additional Steps

This Quick fix might not resolve the DCOM Error in all circumstances.

Remember that during the IIS installation, `IUSR_<MachineName>` and `IWAM_<MachineName>` are added into the Guests group by default. However, in many cases, IT can set strict security rules for the Guests group.

When this is the case

1. Remove the two accounts from the Guests group and add them into `IIS_WPG` group (Figure 2 below).
2. Ensure the following are true:
   - The directory [c]:\inetpub\wwwroot\[Wonderware] has Read and Write permissions for the IIS_WPG Group.
   - The IUSR_<MachineName> and IWAM_<MachineName> accounts are not disabled or expired.


Deep Fix

If the previous steps do not resolve the DCOM Error, you need to synchronize the password manually. The following steps describe using the IIS script file at [c]:\Inetpub\AdminScripts\adsutil.vbs to do this.

- Locate all instances of the IUSR_<MachineName> (Anonymous User Name) by running the following command:

  c:\ Inetpub\AdminScripts>cscript.exe adsutil.vbs find anonymoususername

  Normally, this command returns

  W3SVC (IIS World Wide Web Publishing Service - Manages HTTP protocol and HTTP performance counters)

  In one case, Wonderware Tech Support has seen the following returned:

  W3SVC
  W3SVC/1/ROOT (The first site of W3SVC - Default Web Site)

To synchronize a common password for IIS and Windows Users

1. Define a common password. For this example, we use CommonAnonymousPassword1.
2. Run the following commands:

   [c]:\ Inetpub\AdminScripts>cscript.exe adsutil.vbs set w3svc/anonymoususerpass "CommonAnonymousPassword1"

   [c]:\ Inetpub\AdminScripts>cscript.exe adsutil.vbs set w3svc/1/ROOT/anonymoususerpass "CommonAnonymousPassword1"

3. Set this password as CommonAnonymousPassword1 for IUSR_<MachineName> and IWAM_<MachineName> items in the Windows Users group.

4. Run the iisreset command.
5. Verify License Release.

Scenario: No DCOM Error, but Failed to Call One of the WIS COM+ Components During the License Release Process

In this Scenario, either we have not seen the DCOM Error described in the scenario one, or it has been fixed but WIS Client License still cannot be released. The common reason for this issue is that IUSR_<MachineName> does not have access permission to WIS COM+ components.

Verify the following:

- Missing "Everyone" account in WIS COM+ Roles (below).
- IUSR_<MachineName> and "Everyone" accounts are not equivalent.

Missing "Everyone" Account in WIS COM+ Roles

The WIS Configurator configures the Everyone account into the WIS COM+'s Read Only User Role (Figure 4 below).
The **Everyone** account is also used to allow `IUSR_<MachineName>` to interact with the WIS COM+ component, so that the License Release function in the COM+ component can be executed when the session times out.

However, some WIS administrators remove the **Everyone** account from the **Read Only User** Role because they think that "Everyone" having the right to access the WIS Portal is a security risk.

The workaround for this security concern is to add a new Role and include the **Everyone** User in that Role. In this example, it's called **ReleaseLicense**. WIS does not know the **ReleaseLicense** role exists, but the IIS Session Timeout callback will see the new role and `IUSR_<MachineName>` can then access the WIS COM+ component. Figures 5 and 6 (below) explain adding the new Role and the **Everyone** User.
Troubleshooting Wonderware Information Server (WIS) Part Four: Client License Release

Verify License Release.

- Figure 5: Add a new role under the Wonderware SuiteVoyager COM+

- Figure 6: Add everyone account to the ReleaseLicense role

Remove "Everyone"

Add "Everyone"
IUSR_<MachineName> (Anonymous User) and "Everyone" Accounts are Not Enabled

Another possible reason that a WIS Client License cannot be released is that the IUSR_<MachineName> anonymous account is not the same as the Everyone account. The Everyone account and the anonymous accounts do not match because the Disabled option is set in the Local Group Policy object. Figure 7 (below) shows the correct setting in this context.

**Figure 7: Enable "Everyone" Permissions for "Anonymous" Accounts**

**Windows 2008 Server Anonymous User Account**

In IIS 7.x for Windows 2008 Server, the built-in IUSR account replaces Windows 2003's IUSR_MachineName account. This built-in account does not need a password and will be the default identity that is used when anonymous authentication is enabled.

Therefore, all the topics related to the IUSR_MachineName in this Tech Note are no longer available under IIS 7.x/Windows 2008 Server.

Instead, make sure that the IUSR account is in IIS_IUSRS group. This group has access to all the necessary file and system resources so that an account, when added to this group, can seamlessly act as an application pool identity.

- In order to make sure all of our settings on IUSR_MachineName are still good in IIS 7.x of Windows 2008 Server, add IUSR into the IIS_IUSRS group (Figure 8 below).
Verify License Release

1. To save time, configure the session timeout value to 1 minute. Figures 8 and 9 (below) show the setting in IIS 6 (Internet Information Services/WEB Sites/Default Web Site) and IIS 7 (Connections/IIS/ASP).
2. Logon WIS from another machine. From WIS License Manager, you will see the second line in the Client Licenses List.

3. Close the second instance of WIS. Wait about 1 minute and click the Refresh button (F5). If the second line disappears, the Client License Release issue is fixed.

4. Recycle all WIS client license(s) by restarting the Wonderware License Manager service.

5. Change the Session Timeout value back to the default (20 minutes) or to the previous setting.

Conclusion

The Wonderware License Release Mechanism interacts extensively with Windows Security on IIS and COM+ components. Applying strict security rules on the WIS Server can cause various session license release problems. Please contact Wonderware Technical Support for any exception to this Tech Note.

References

- TN 786 Troubleshooting Wonderware Information Server (WIS): Part 1
- TN 790 Troubleshooting Wonderware Information Server (WIS): Part 2

https://wdnresource.wonderware.com/support/kbcd/html/1/002602.htm