

Tech Note 680

Configuring ActiveFactory for ArcestrA License Server Communication Across a Firewall

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Introduction

ActiveFactory maintains communication with the ArcestrA License Server in order to verify its license status. The default communication uses TCP/IP ports 27000 through 27009:

- **27000** is the default port for communicating with the ArcestrA License Server. This port is also used to discover whether a specific port is used.
- When no other specific port is configured, ActiveFactory uses *any* port between 27000-09.
- When a specific port is discovered, it attempts to use that port.

The default ports are all added to the local Windows Firewall Exceptions list when you install ActiveFactory (Figure 1 below).

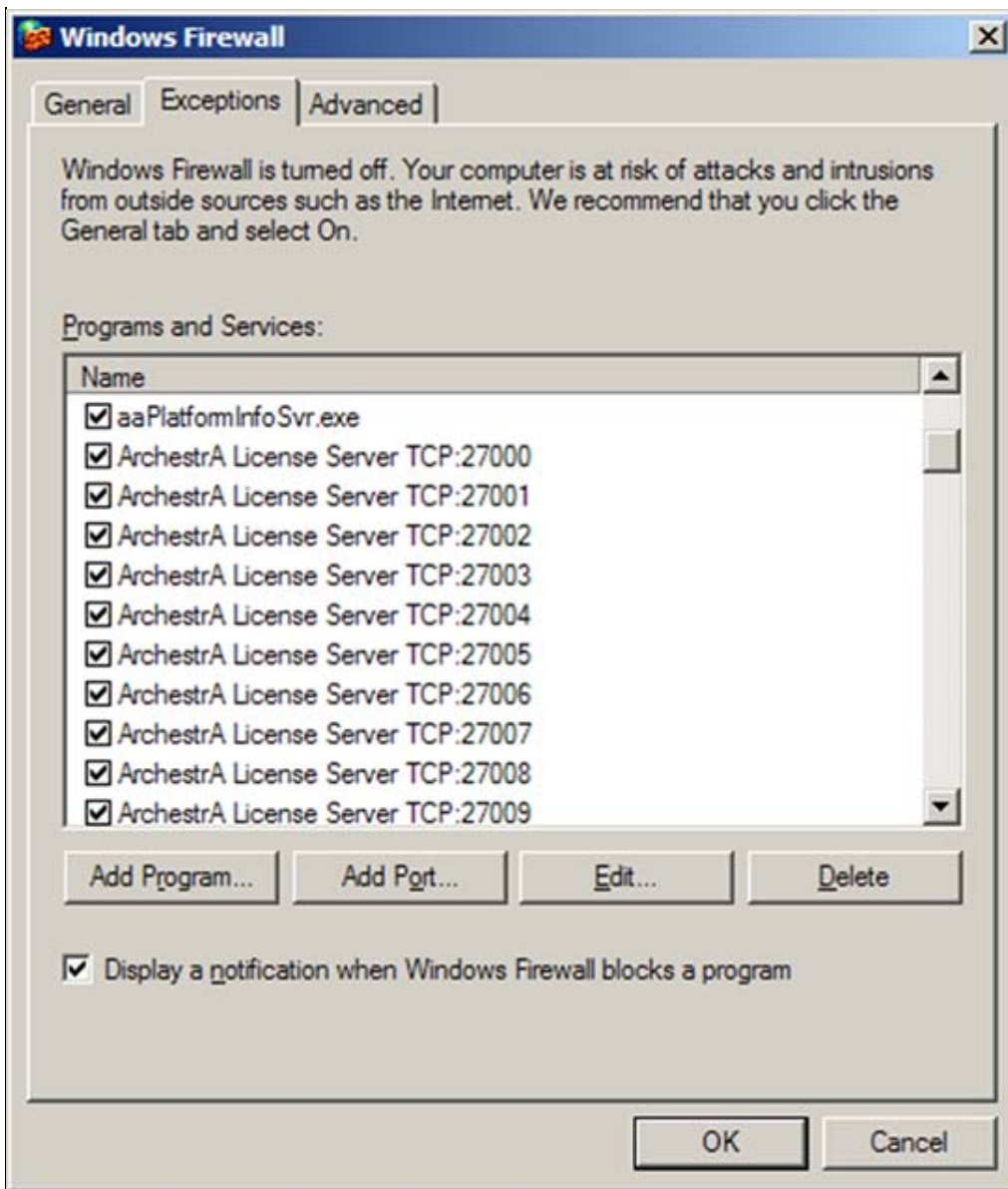


FIGURE 1: WINDOWS FIREWALL EXCEPTIONS LIST

When no firewall exists between the Server and ActiveFactory nodes, and no specific port is necessary, communication between the nodes occurs on any of these ports and no extra configuration is necessary.

When you have a hardware or software firewall installed between the ArchestrA License Server node (with ArchestrAServer.lic), and an ActiveFactory client node application such as Trend or Query, this communication can be blocked. The client then switches into demo mode because the ActiveFactory application cannot access the License Server through the other firewall (Figure 2 below).

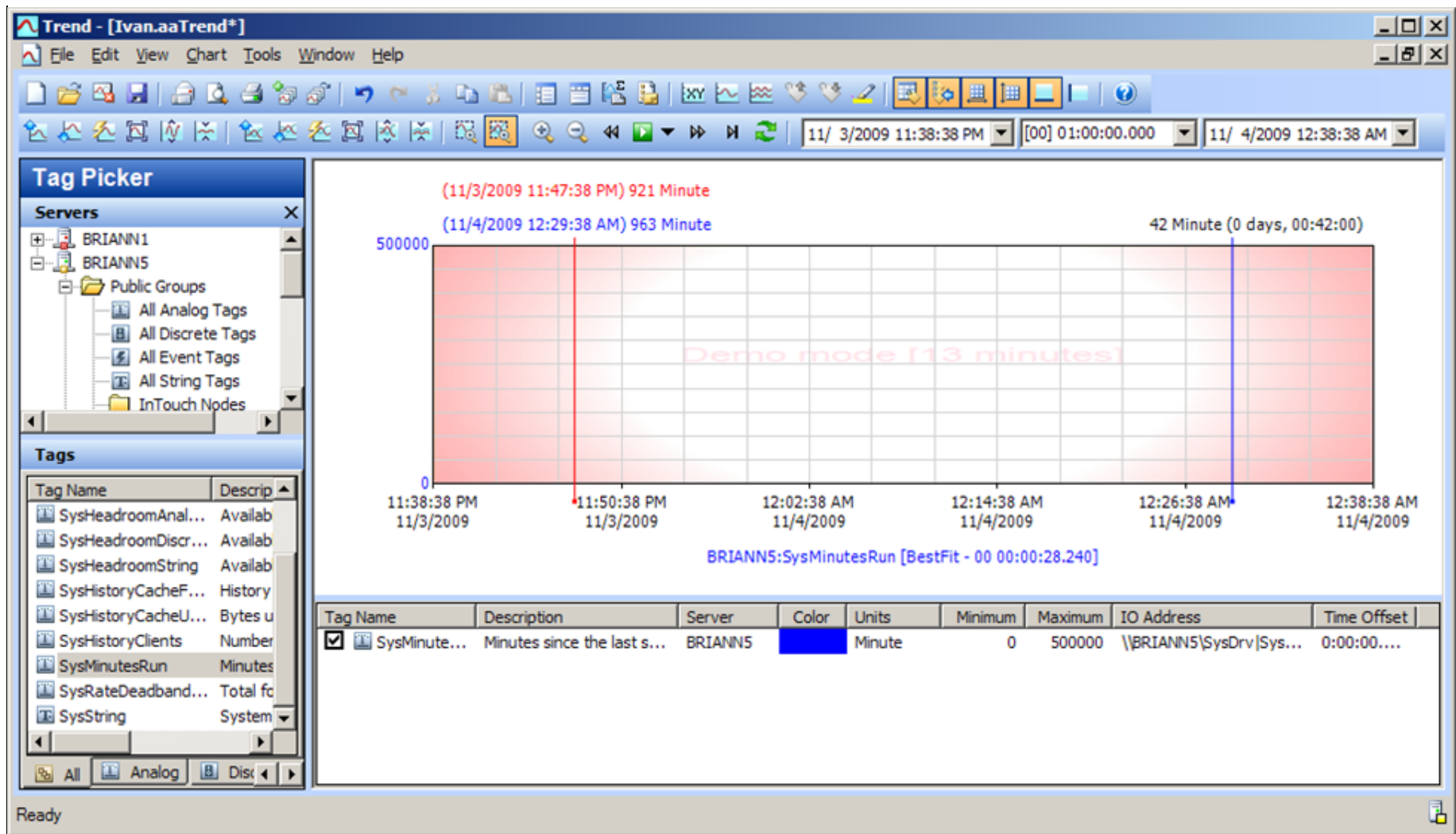


FIGURE 2: ACTIVEFACTORY TREND FALLS INTO DEMO MODE

You can test this easily by disabling the external firewall. If this problem is then resolved, complete the following steps in order to restore and maintain ActiveFactory's communication through the firewall to the ArchestrA License Server.

You can also follow the instructions in [Tech Note 577 Tips for Resolving Demo Mode with ActiveFactory and WIS](#) to make sure you don't have any other issues with the ActiveFactory licensing.

This *Tech Note* explains port configuration in the scenario where you have firewall(s) between the ArchestrA License Server and ActiveFactory Application nodes.

Application Versions

- ActiveFactory v9.2 or later
- Historian v9.0 Patch 02 or later

- Windows 2003 Operating System

Port Configuration Options

If you have firewalls other than the Windows firewall, you need to make sure these TCP/IP listening ports (from 27000 to 27009) are also opened on *each* of the firewalls between the ArcestrA license server and the ActiveFactory client application. The same is true if you designate a port outside the default range, but you must also add that port to your Windows Firewall Exception list on the license server machine.

Note: Windows or hardware Firewall configuration instructions are outside the scope of this *Tech Note*.

You can specify a TCP/IP port using the **ArcestrAServer.lic** file on the server. The following options are possible:

- Specify a port number between 27000 and 27009.
- Specify a port number other than 27000-27009, outside the default port range.

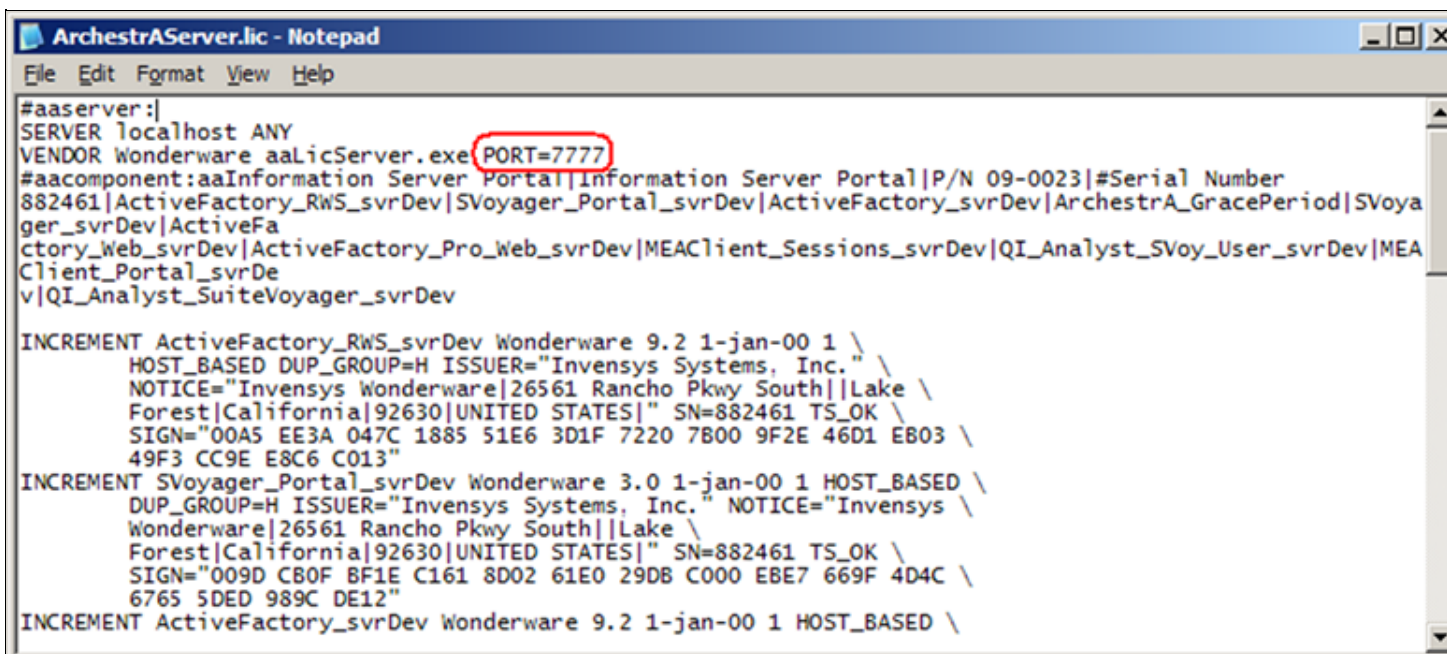
When a port outside the default range is necessary, and no external firewall exists, you must configure the port *only* at the Server, and add it to the local firewall's exception lists on the license server machine.

Configuring a Port

You can designate a specific port for the license server to use for the license request by adding the element **PORT=####**, where **####** is the port number you want ActiveFactory to use in order to communicate with the license server.

Note: The following example shows a port number of 7777. In this scenario, you must complete the following steps, *and* add Port 7777 to both your local and external firewall exception lists. In the case where the port number is one of the default port numbers (27000-27009), you only configure the external firewall exception(s) list.

Figure 3 (below) shows Port **7777** added to the ArcestrAServer.lic file: **VENDOR Wonderware aaLicServer.exe PORT=7777**.



```
ArcestrAServer.lic - Notepad
File Edit Format View Help
#aaserver:|
SERVER localhost ANY
VENDOR Wonderware aaLicServer.exe PORT=7777
#aacomponent:aaInformation Server Portal|Information Server Portal|P/N 09-0023|#Serial Number
882461|ActiveFactory_RwS_svrDev|SVoyager_Portal_svrDev|ActiveFactory_svrDev|ArcestrA_GracePeriod|SVoya
ger_svrDev|ActiveFa
ctory_Web_svrDev|ActiveFactory_Pro_Web_svrDev|MEAClient_Sessions_svrDev|QI_Analyst_SVoy_User_svrDev|MEA
Client_Portal_svrDe
v|QI_Analyst_SuiteVoyager_svrDev

INCREMENT ActiveFactory_RwS_svrDev Wonderware 9.2 1-jan-00 1 \
  HOST_BASED DUP_GROUP=H ISSUER="Invensys Systems, Inc." \
  NOTICE="Invensys Wonderware|26561 Rancho Pkwy South||Lake \
  Forest|California|92630|UNITED STATES|" SN=882461 TS_OK \
  SIGN="00A5 EE3A 047C 1885 51E6 3D1F 7220 7B00 9F2E 46D1 EB03 \
  49F3 CC9E E8C6 C013"
INCREMENT SVoyager_Portal_svrDev Wonderware 3.0 1-jan-00 1 HOST_BASED \
  DUP_GROUP=H ISSUER="Invensys Systems, Inc." NOTICE="Invensys \
  Wonderware|26561 Rancho Pkwy South||Lake \
  Forest|California|92630|UNITED STATES|" SN=882461 TS_OK \
  SIGN="009D C80F BF1E C161 8D02 61E0 29DB C000 EBE7 669F 4D4C \
  6765 5DED 989C DE12"
INCREMENT ActiveFactory_svrDev Wonderware 9.2 1-jan-00 1 HOST_BASED \
```

FIGURE 3: ADDING PORT NUMBER TO ARCHESTRASERVER.LIC FILE

On the License Server Node

1. Open the ArchestrAServer.lic file (using Notepad or other editor) and modify it to include your port number (Figure 3 above).
2. Save and close the file.
3. Start the ArchestrA License Manager, and then navigate to the **Server** node under the **License Files** node.
4. Right-click the **Server** node and click **Re-read License File**.

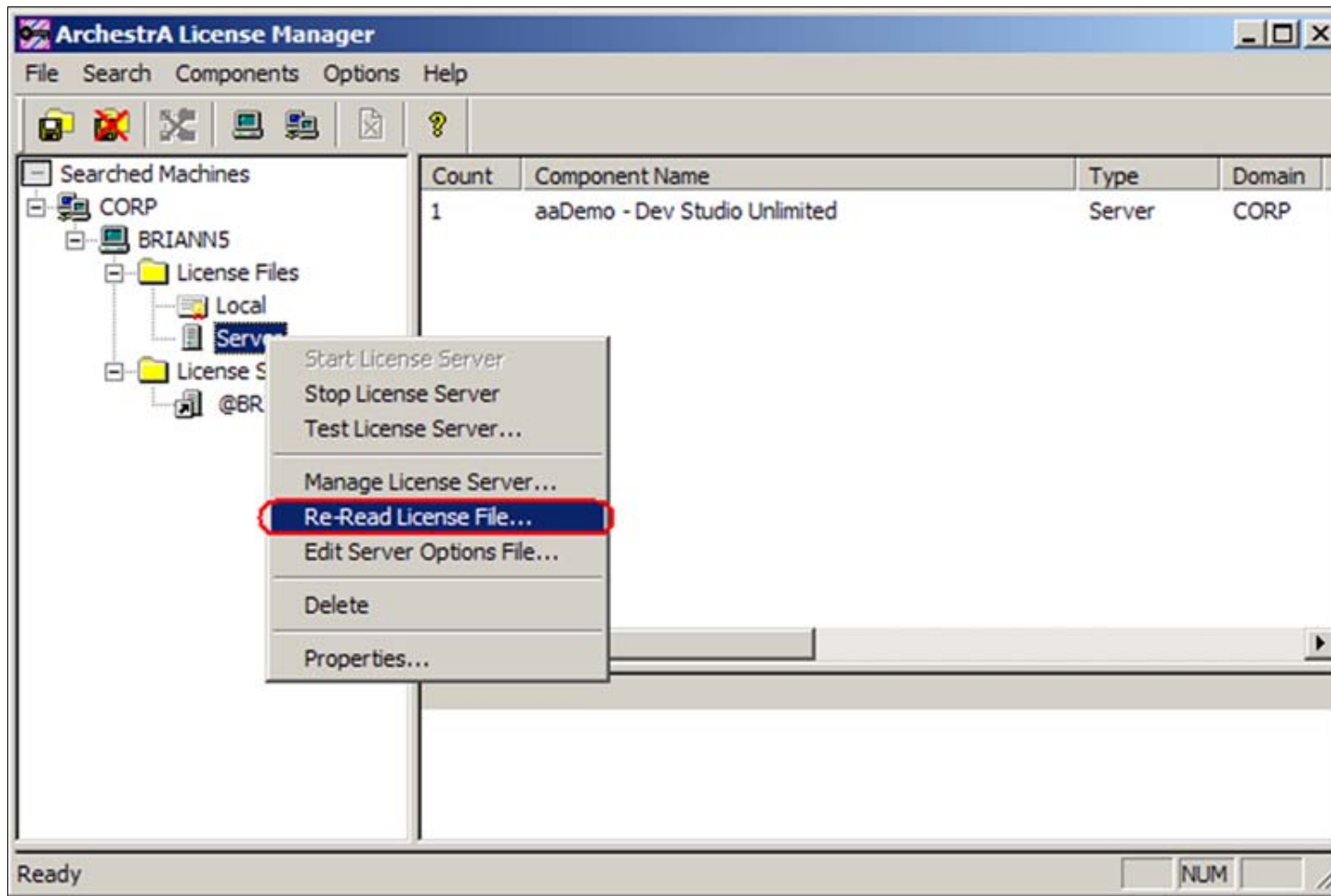


FIGURE 4: RE-READ LICENSE FILE

5. Right-click **Server**, and click **Stop License Server**.
6. Then right-click the **Server** node again and click **Start Licence Server** so that the change can takes effect.

On the ActiveFactory Client Node

1. On the machine running the ActiveFactory client application on the other side of the firewall, start the Arcestra License Manager and right-click the **Server** name under the <Machine Name>/License Servers.
2. Click **Delete** to remove the remote license server name (Figure 5 below).

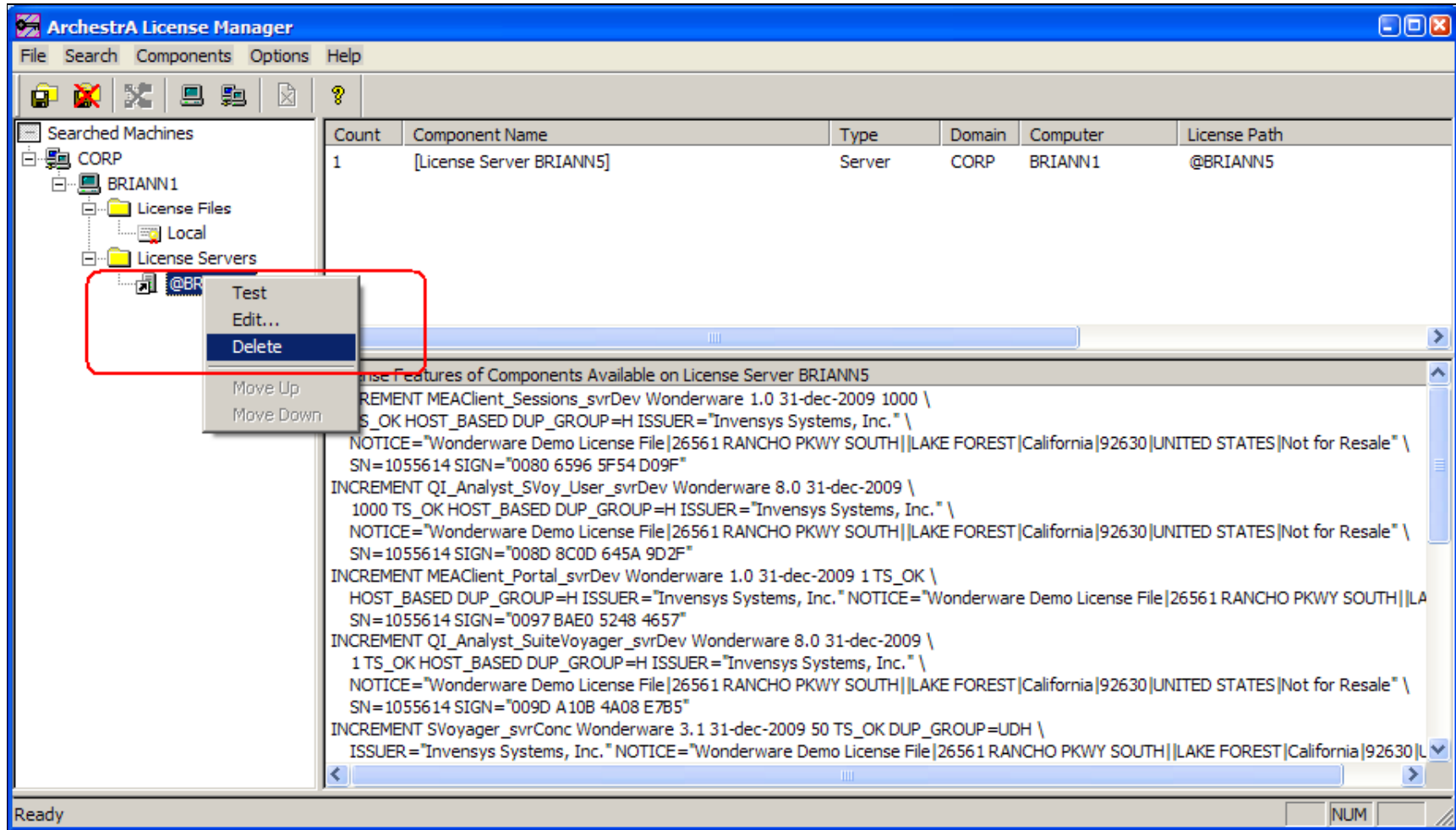


FIGURE 5: DELETE THE SERVER NODE

3. Next, right-click on your local computer node (**BRIANN1** in this example), and click **Add License Server** (Figure 6 below).
4. Type the Arcestra License Server's computer name in the **License Server Computer** field and click **OK**.

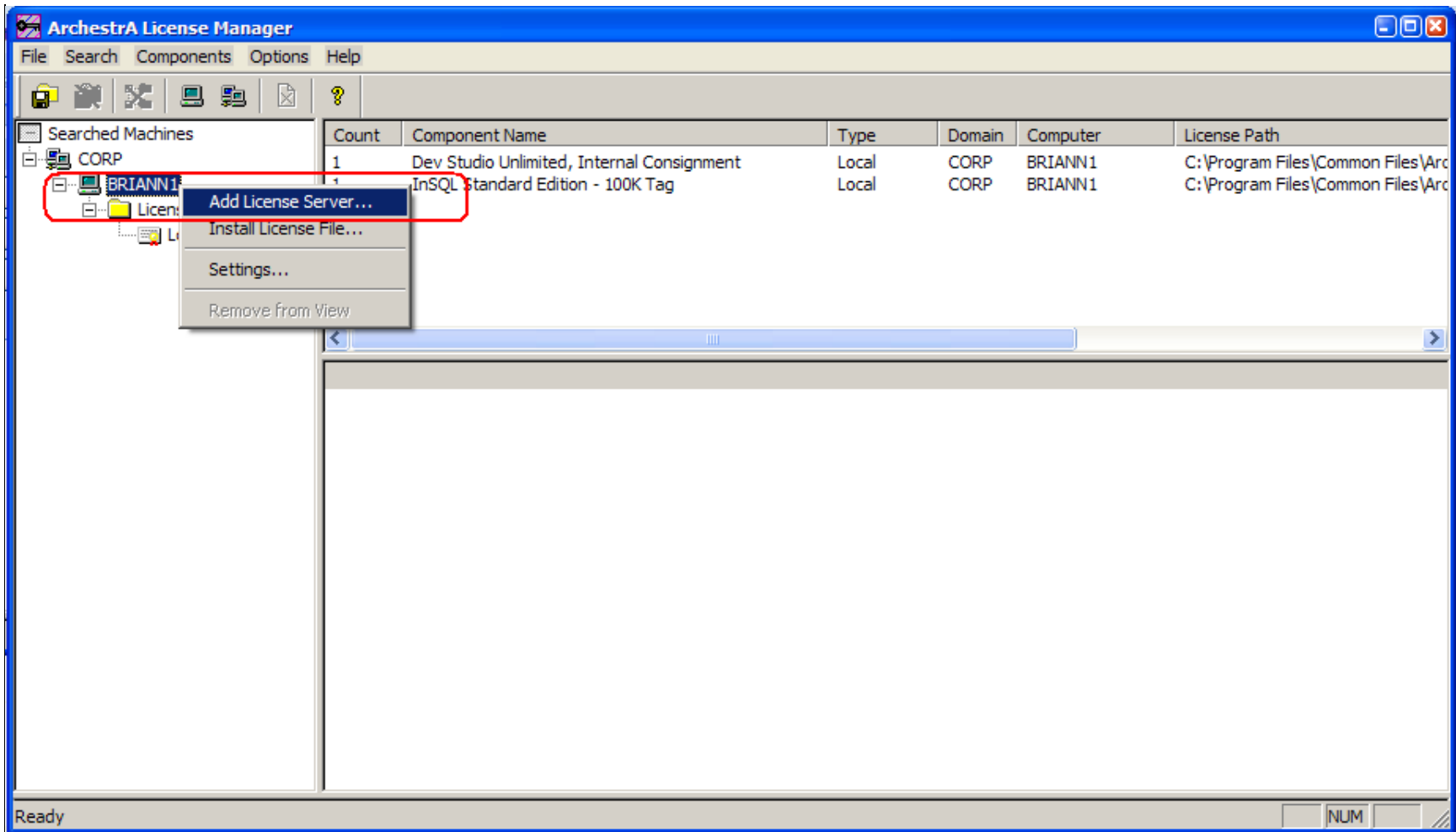


FIGURE 6: ADDING LICENSE SERVER

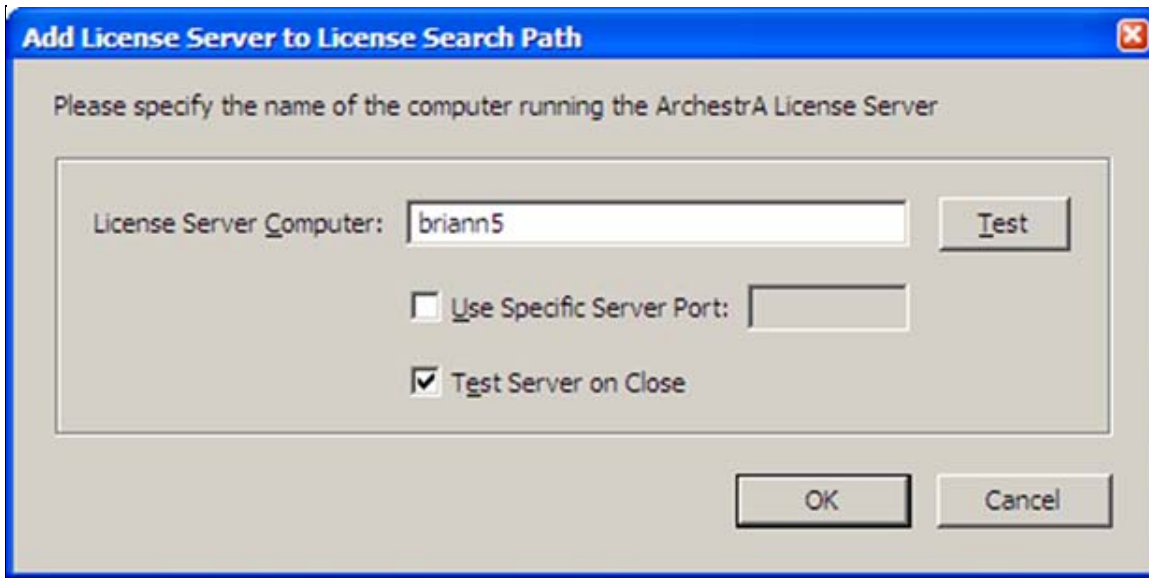


FIGURE 7: RE-TYPE LICENSE SERVER COMPUTER NAME

The ActiveFactory client application should now connect to the license server via the designated TCP port (port 7777 in this example). The connection obtains the license and allows the application to run using the specified port. In this example, Trend can now display Wonderware Historian data. Figure 7 (below) shows the **License Status** window and the trend.

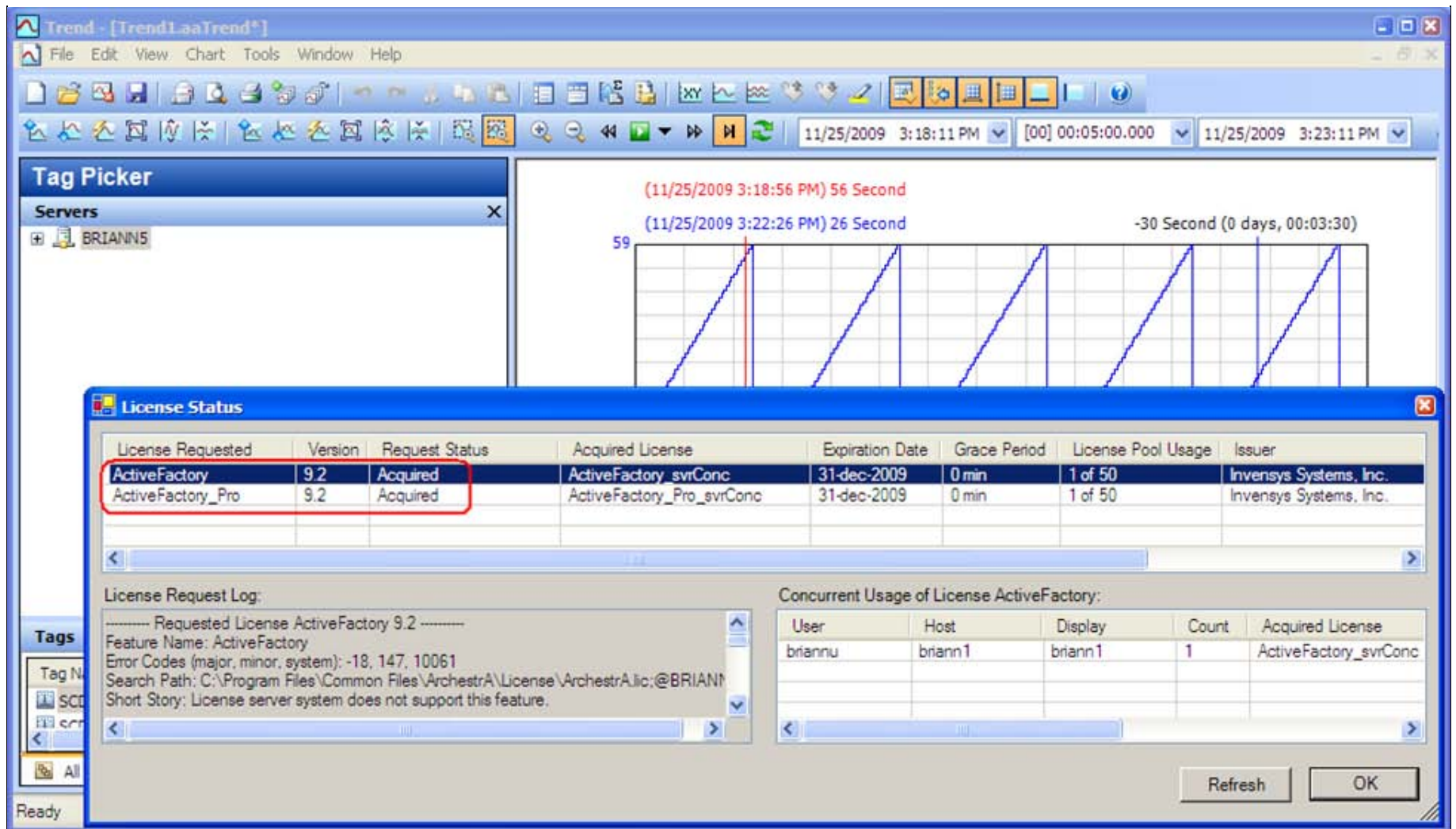


FIGURE 8: ACTIVEFACTORY LICENSE ACQUIRED

Alternate Method

Instead of modifying the License file using Step 1 above, you can use the ArchestrA License Manager on the ActiveFactory client to specify one of the ports from the Firewall Exception list.

1. Open the ArchestrA License Manager on the ActiveFactory client node.
2. Click the **Use Specific Server Port** option and type a port that is excluded from the Firewall Exception list as shown in [Figure 1 above](#). In this example, port 27000 is used (Figure 9 below):

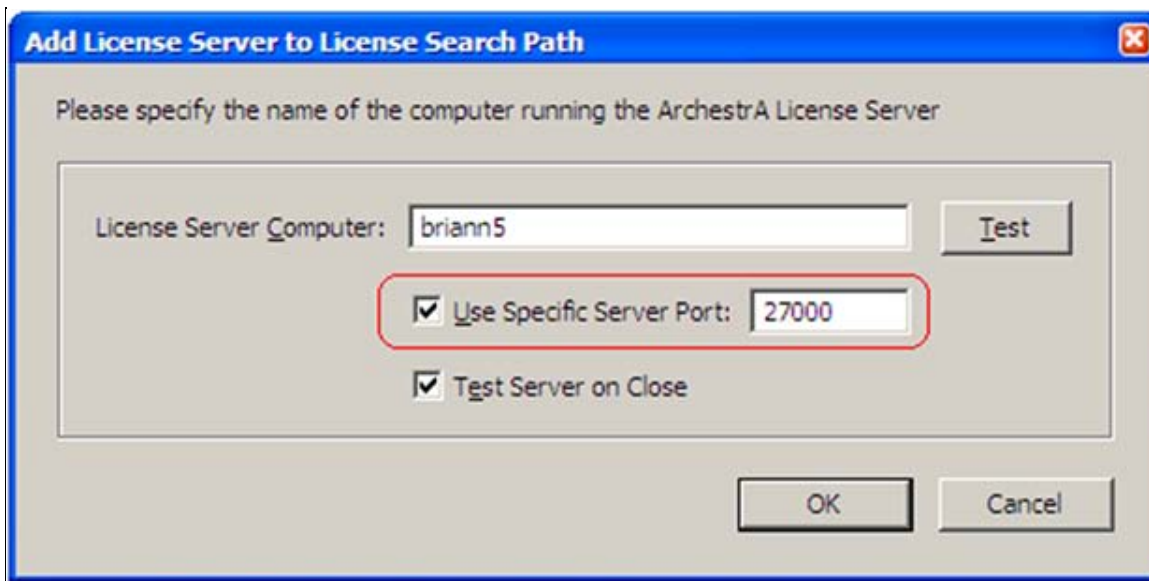


FIGURE 9: USE SPECIFIC SERVER PORT OPTION

More Information

A third-party utility called **Advanced Port Scanner** was used during testing in order to verify open ports on the computer running ArcestrA License Server. The utility shows both ports 7777 and 27000 are open (Figure 10 below).



Select IP: 10 . 2 . 81 . 140 Use range

Use group of ranges

Select ports range: 0 - 29000 Use default ports list

Use ports ranges list

- 110 Open (pop3)
- 135 Open (loc-srv)
- 139 Open (netbios-ssn)
- 445 Open (microsoft-ds)
- 1036 Open
- 1037 Open
- 1025 Open (Microsoft ADL)
- 1026 Open
- 1080 Open (socks)
- 1433 Open (ms-sql-s)
- 2383 Open
- 3389 Open
- 3517 Open
- 5026 Open
- 5120 Open
- 5413 Open
- 6129 Open
- **7777 Open**
- 8081 Open
- 8090 Open
- **27000 Open**
- + Closed ports (28978)

FIGURE 10: OPEN PORTS ON ARCHESTRA LICENSE SERVER NODE

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