Tech Note 1036

Implementing the FSGateway Redundant Object with InTouch as the Data Source

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Topic#: 002874
Created: April 2014

Introduction

This *Tech Note* explains configuring FSGateway as a Redundant OPC server, using the FSGateway Redundant Object. The FSGateway reduntant object is configured with InTouch objects as the primary and backup data sources. This *Tech Note* is derived from a service request from a Wonderware distributor.

Application Versions

- InTouch (all versions)
- Matrikon

Preparation:

Assuming the readers already have InTouch applications running in at least two separate network nodes, in our demonstration we are using two nodes with the ip address of 10.2.81.29 (remote InTouch app node) and 10.2.81.116 (happen to be in the local node - Localhost, local InTouch app node, notice the InTouch does not have to be running in local node at all)

In our demonstration, we have created in our InTouch applications

- An Identical Access Name **Internal** configured with View and Tagname.
- An identical item named **Tag1** which is tied to the **$Second** attribute so we can display the running data update.

Setting up the FSGateway Primary and Backup InTouch Data Source Objects

1. From Wonderware System Management Console (SMC) under **DAServer Manager / Default Group / Local**, navigate to **FSGateway / Configuration**.
2. Highlight the **Configuration** item and right-click/select **Add InTouch Object** (Figure 1 below). This is the **Primary** InTouch node.

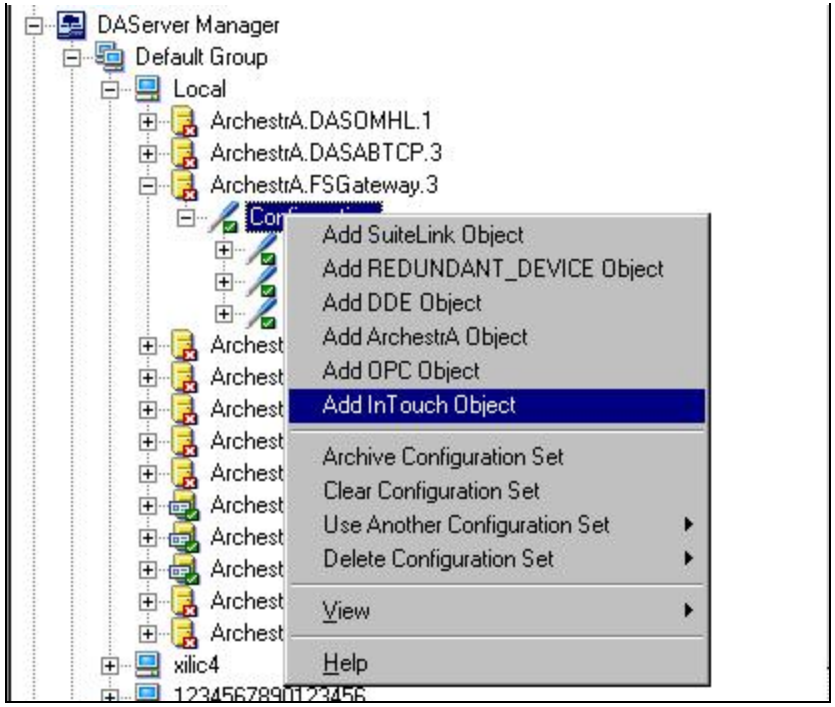

FIGURE 1: ADD PRIMARY INTOUCH NODE

InTouch Runtime Node

1. From the InTouch object configuration editor, you can browse the location (node name from the network) where the primary InTouch application is running; or, if you know the InTouch application node IP address, you can provide the IP address manually (Figure 2 below).

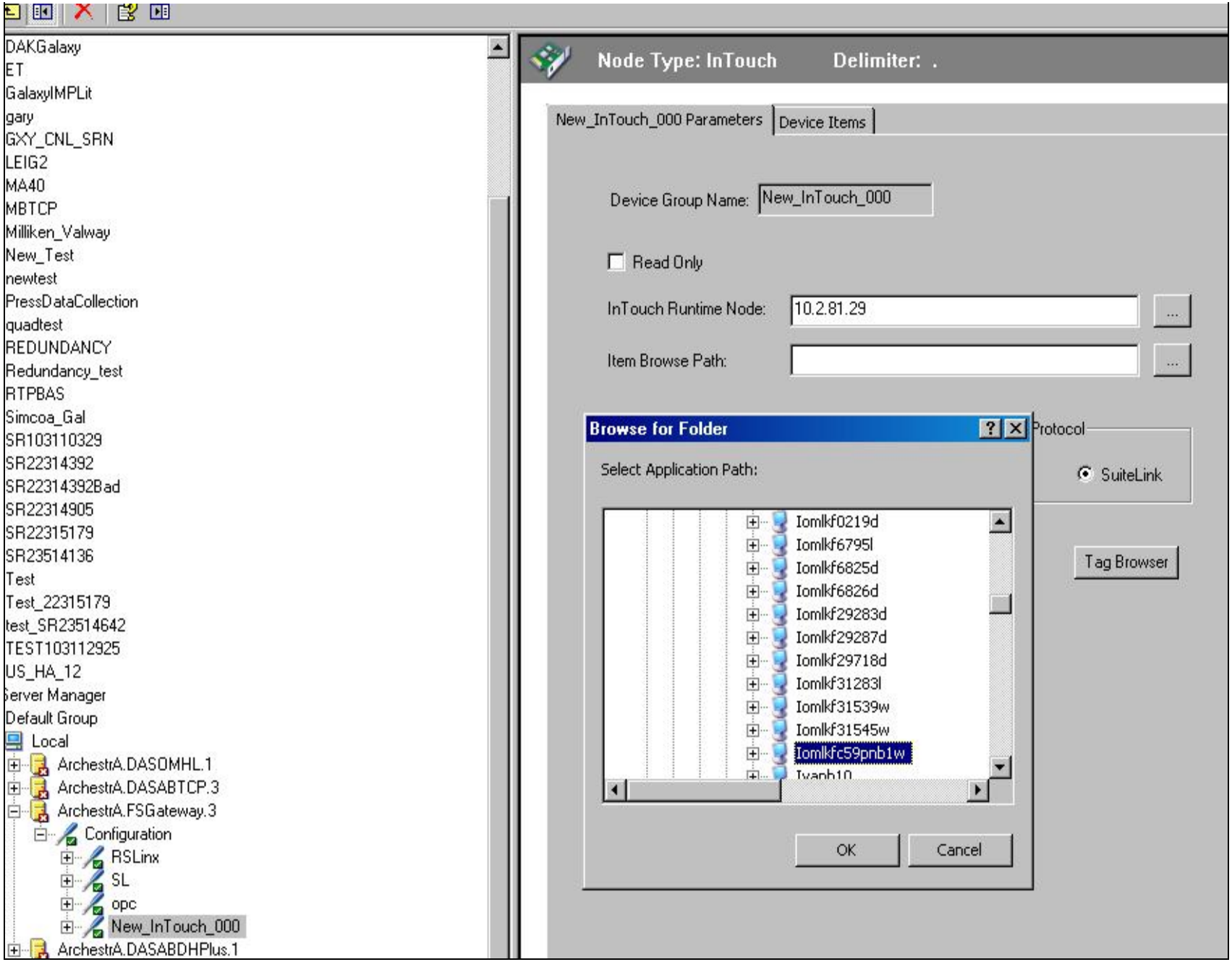

FIGURE 2: IP ADDRESS OR NETWORK NAME FOR INTOUCH NODE

2. Type the path of the InTouch application's Tag Dictionary (DB) (Figure 3 below).

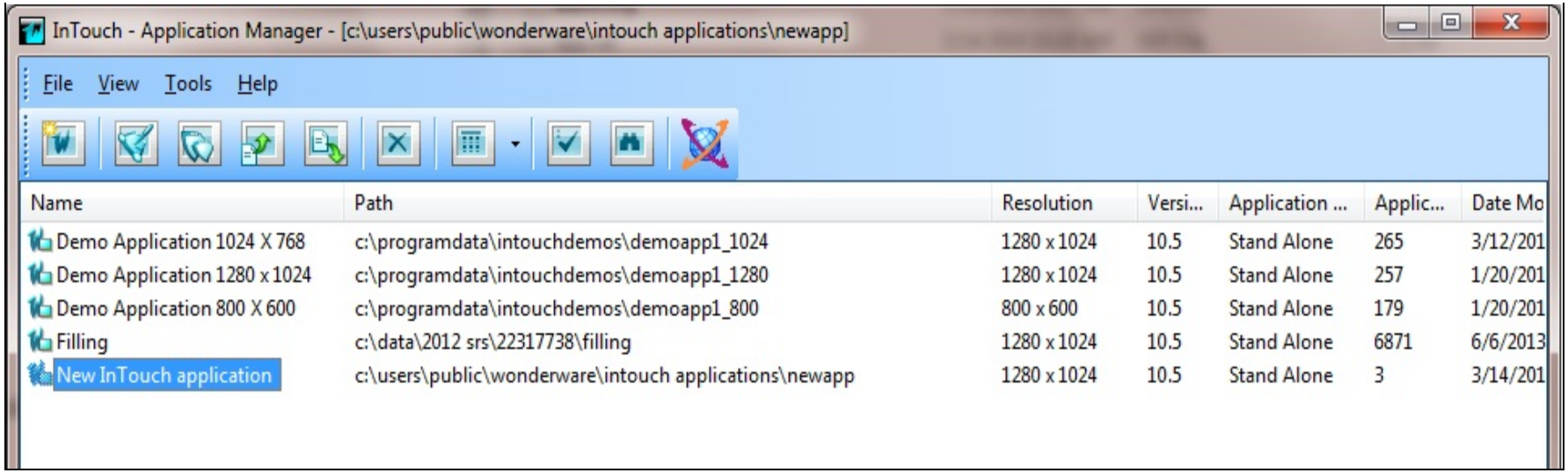

FIGURE 3: INTOUCH TAG DICTIONARY DB PATH

Note: The InTouch application tag DB folder must be properly shared in the network environment, otherwise you will not be able to browse the path. When you provide the path manually without the folder being shared, you will get an invalid configuration (Figure 4 below).

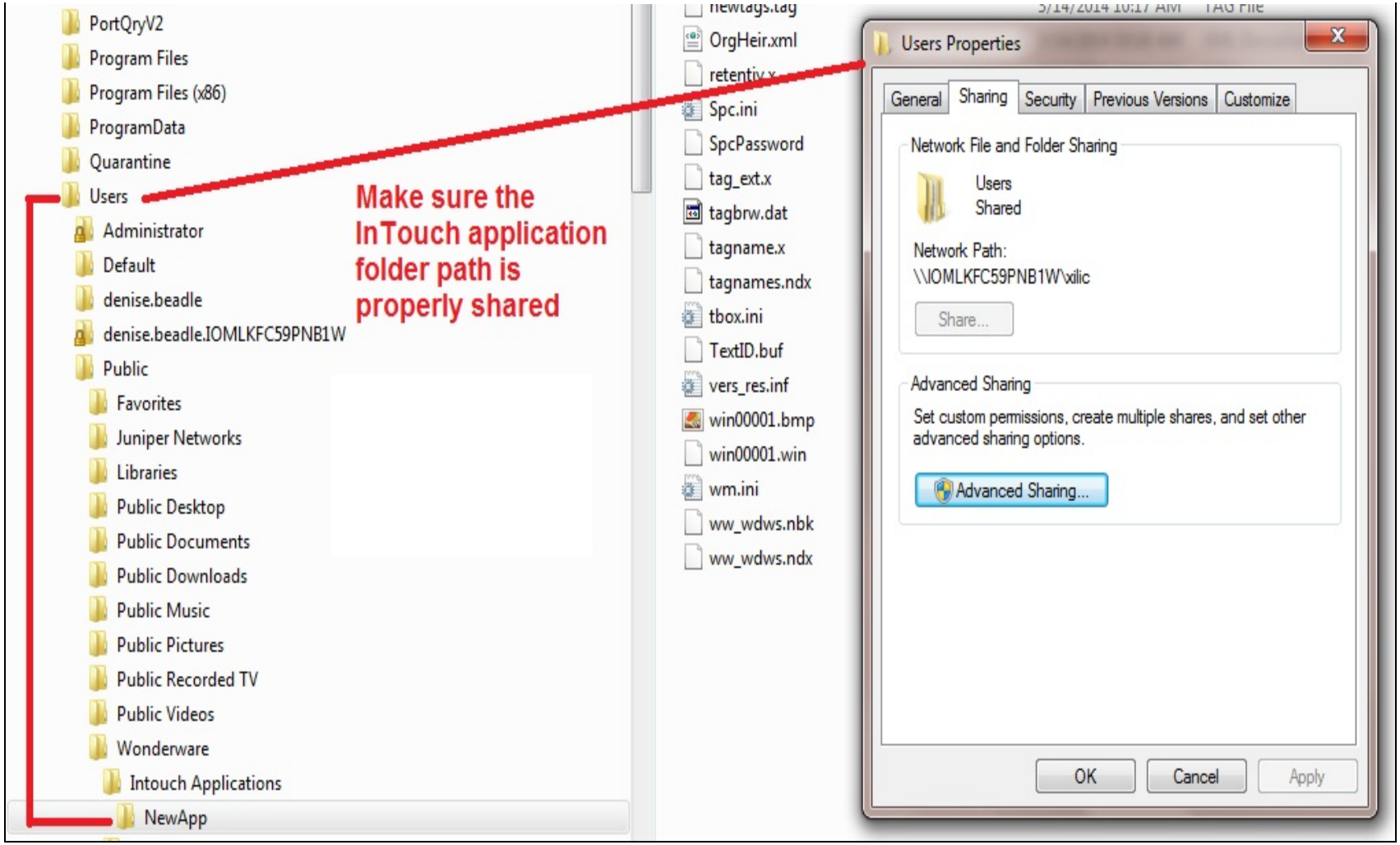

Figure 4: InTouch Tag DB Folder Shared

Figure 5 (below) shows the path of the InTouch application DB is successfully browsed in.

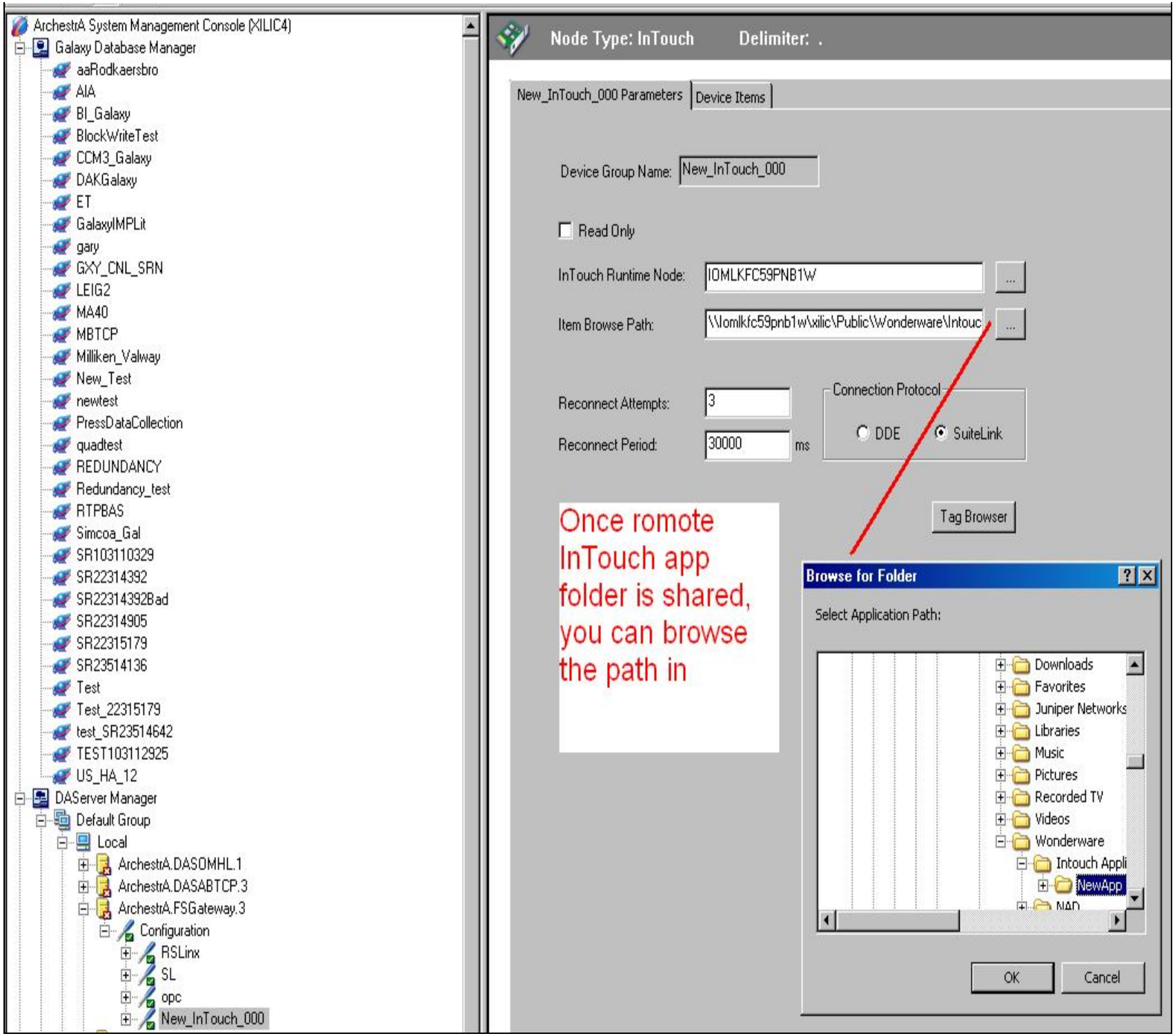
ArchestrA System Management Console (XILIC4)
Galaxy Database Manager
aaRodkaersbro
AIA
BI_Galaxy
BlockWriteTest
CCM3_Galaxy
DAKGalaxy
ET
GalaxyIMPLit
gary
GXY_CNL_SRN
LEIG2
MA40
MBTCP
Milliken_Valway
New_Test
newtest
PressDataCollection
quadtest
REDUNDANCY
Redundancy_test
RTPBAS
Simcoa_Gal
SR103110329
SR22314392
SR22314392Bad
SR22314905
SR22315179
SR23514136
Test
Test_22315179
test_SR23514642
TEST103112925
US_HA_12
DAServer Manager
Default Group
Local
ArchestrA.DASOMHL.1
ArchestrA.DASABTCP.3
ArchestrA.FSGateway.3
Configuration
RSLinx
SL
opc
New_InTouch_000
Node Type: InTouch
Delimiter: .
New_InTouch_000 Parameters
Device Items
Device Group Name:
New_InTouch_000
Read Only
InTouch Runtime Node:
IOMLKFC59PNB1W
Item Browse Path:
\\Iomlkfc59pnb1w\xilic\Public\Wonderware\Intouc
Reconnect Attempts:
3
Reconnect Period:
30000
ms
Connection Protocol
DDE
SuiteLink
Tag Browser
Once romote InTouch app folder is shared, you can browse the path in
Browse for Folder
Select Application Path:
Downloads
Favorites
Juniper Networks
Libraries
Music
Pictures
Recorded TV
Videos
Wonderware
Intouch Appli
NewApp
OK
Cancel

FIGURE 5: INTOUCH APP SHARED FILE

3. Next, add the group object under the InTouch object (Figure 6 below).

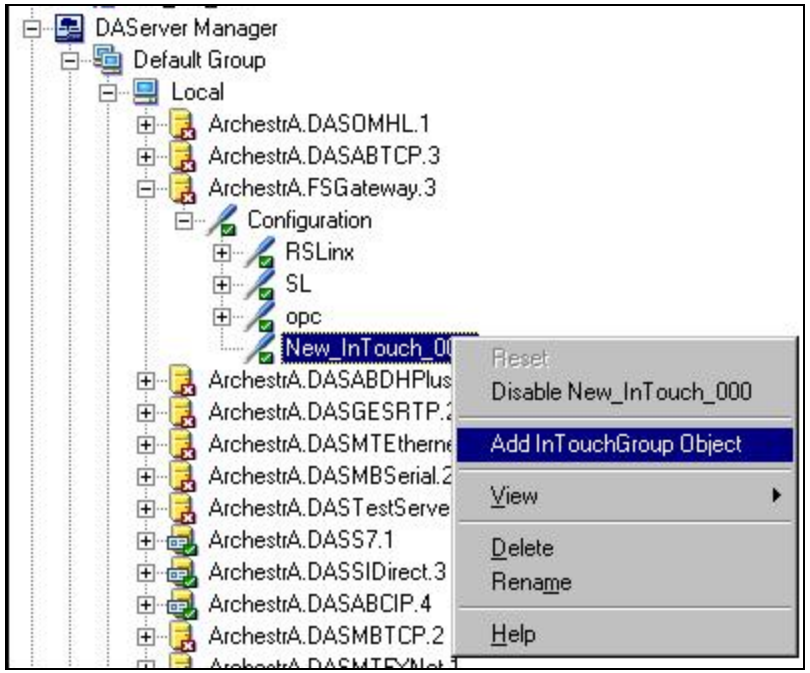

FIGURE 6: INTOUCHGROUP OBJECT

Once the group object is added, you can use the tag browser to verify if the connection to the InTouch app DB is good. You should be able to browse all the items in the InTouch app's tag dictionary. Figure 7.

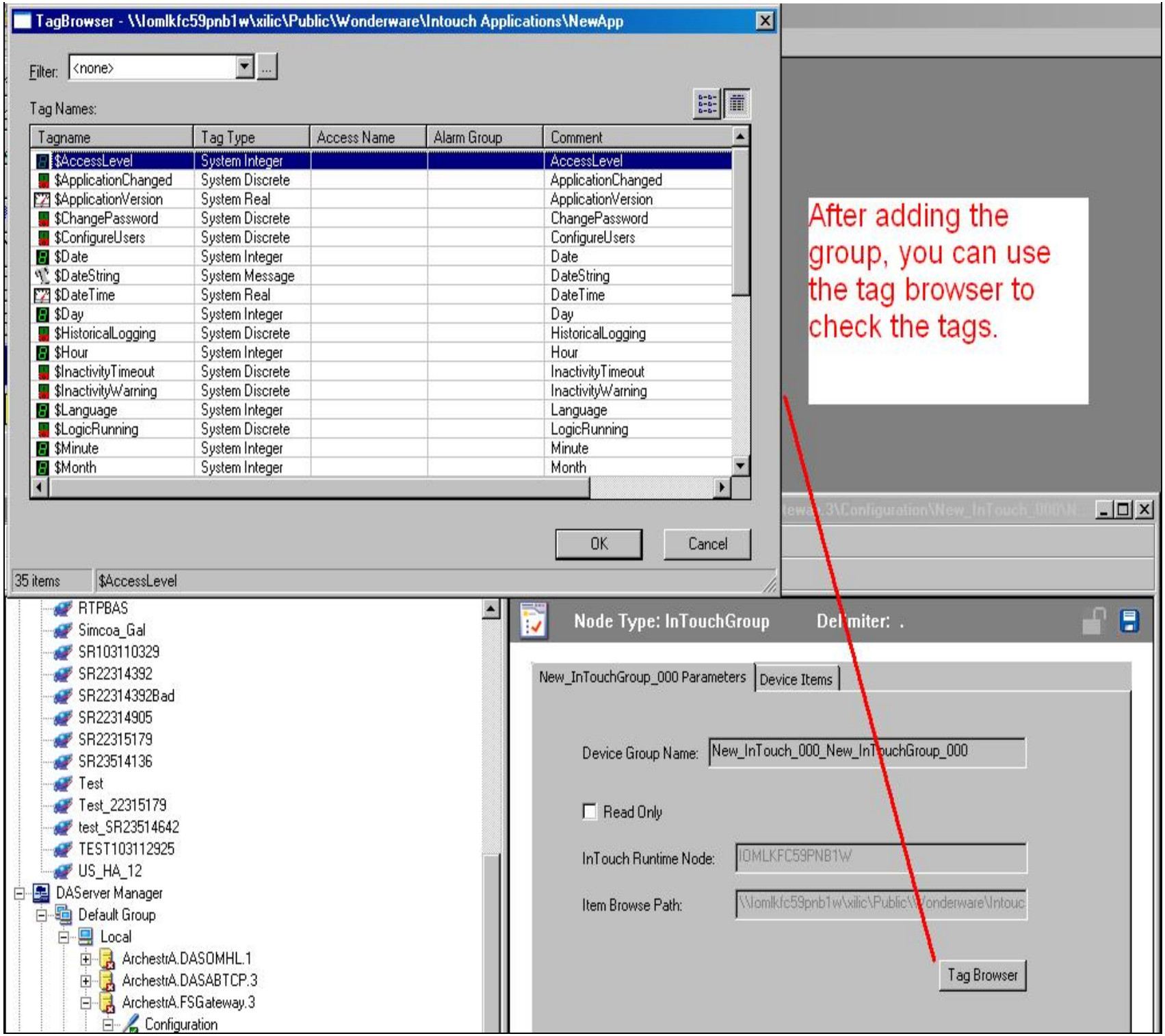
TagBrowser - \\lomlkfc59pnb1w\xilic\Public\Wonderware\Intouch Applications\NewApp
Filter: <none>
Tag Names:
Tagname | Tag Type | Access Name | Alarm Group | Comment
$AccessLevel | System Integer | AccessLevel
$ApplicationChanged | System Discrete | ApplicationChanged
$ApplicationVersion | System Real | ApplicationVersion
$ChangePassword | System Discrete | ChangePassword
$ConfigureUsers | System Discrete | ConfigureUsers
$Date | System Integer | Date
$DateString | System Message | DateString
$DateTime | System Real | DateTime
$Day | System Integer | Day
$HistoricalLogging | System Discrete | HistoricalLogging
$Hour | System Integer | Hour
$InactivityTimeout | System Discrete | InactivityTimeout
$InactivityWarning | System Discrete | InactivityWarning
$Language | System Integer | Language
$LogicRunning | System Discrete | LogicRunning
$Minute | System Integer | Minute
$Month | System Integer | Month
OK
Cancel
35 items
$AccessLevel
After adding the group, you can use the tag browser to check the tags.
RTPBAS
Simcoa_Gal
SR103110329
SR22314392
SR22314392Bad
SR22314905
SR22315179
SR23514136
Test
Test_22315179
test_SR23514642
TEST103112925
US_HA_12
DAServer Manager
Default Group
Local
ArchestrA.DASOMHL.1
ArchestrA.DASABTCP.3
ArchestrA.FSGateway.3
Configuration
Node Type: InTouchGroup
Delimiter: .
New_InTouchGroup_000 Parameters
Device Items
Device Group Name: New_InTouch_000_New_InTouchGroup_000
Read Only
InTouch Runtime Node: IOMLKFC59PNB1W
Item Browse Path:
Tag Browser

FIGURE 7: VERIFY THE INTOUCH DB CONNECTION

4. Repeat the same steps to add the backup InTouch object and group object (Figures 8 and 9 below). Notice this object will use a different InTouch application in a different network node. In our demo, the first InTouch app is located at IP address 10.2.81.29, and the backup InTouch app is located in the local node (Loacalhost).

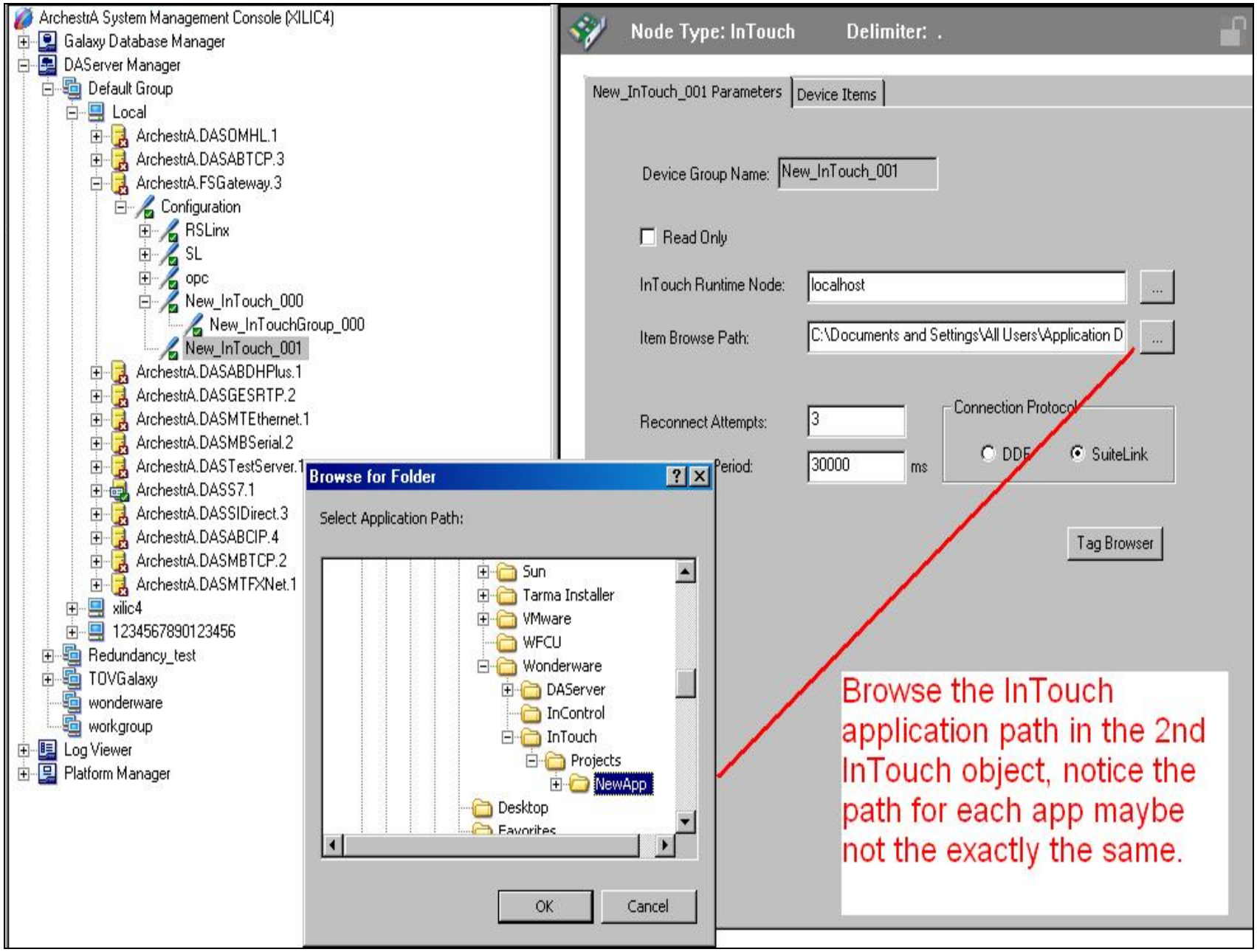

Figure 8: Browse to 2nd Application Path

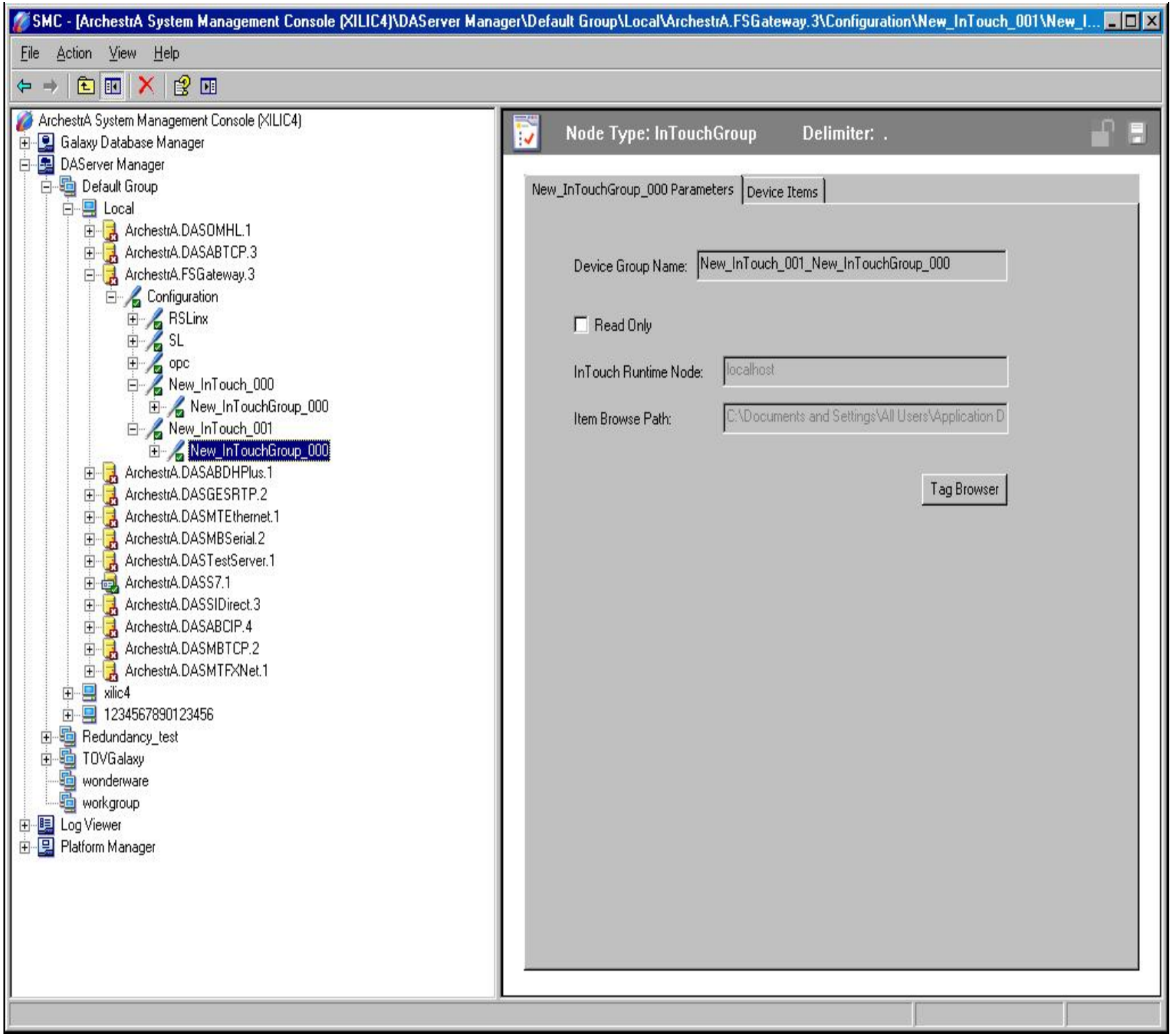
SMC - [ArchestrA System Management Console (XILIC4)\DAServer Manager\Default Group\Local\ArchestrA.FSGateway.3\Configuration\New_InTouch_001\New_I...
File Action View Help
ArchestrA System Management Console (XILIC4)
Galaxy Database Manager
DAServer Manager
Default Group
Local
ArchestrA.DASOMHL.1
ArchestrA.DASABTCP.3
ArchestrA.FSGateway.3
Configuration
RSLinx
SL
opc
New_InTouch_000
New_InTouchGroup_000
New_InTouch_001
New_InTouchGroup_000
ArchestrA.DASABDHPlus.1
ArchestrA.DASGESRTP.2
ArchestrA.DASMTEthernet.1
ArchestrA.DASMBSerial.2
ArchestrA.DASTestServer.1
ArchestrA.DASS7.1
ArchestrA.DASSIDirect.3
ArchestrA.DASABCIP.4
ArchestrA.DASMBTCP.2
ArchestrA.DASMTFXNet.1
xilic4
1234567890123456
Redundancy_test
TOVGalaxy
wonderware
workgroup
Log Viewer
Platform Manager
Node Type: InTouchGroup
Delimiter: .
New_InTouchGroup_000 Parameters
Device Items
Device Group Name:
New_InTouch_001_New_InTouchGroup_000
Read Only
InTouch Runtime Node:
localhost
Item Browse Path:
C:\Documents and Settings\All Users\Application D
Tag Browser

FIGURE 9: NEW INTOUCHGROUP

Setting up the FSGateway Redundant Device Object

1. From the **SMC/FSGateway/Configuration** list, add the Redundant Device Object (Figure 10 below).

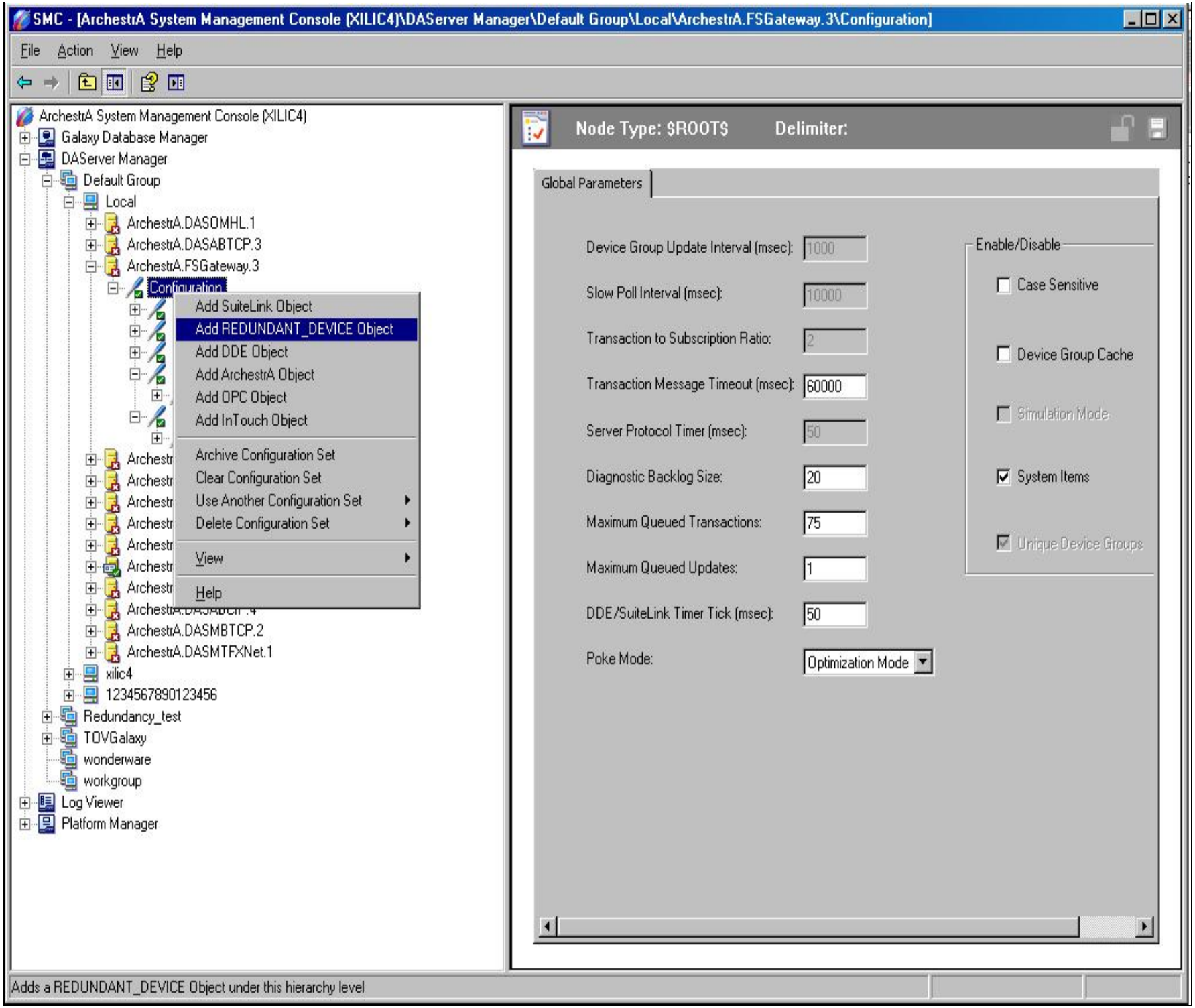
SMC - [ArchestrA System Management Console (XILIC4)\DAServer Manager\Default Group\Local\ArchestrA.FSGateway.3\Configuration]
File Action View Help
ArchestrA System Management Console (XILIC4)
Galaxy Database Manager
DAServer Manager
Default Group
Local
ArchestrA.DASOMHL.1
ArchestrA.DASABTCP.3
ArchestrA.FSGateway.3
Configuration
Add SuiteLink Object
Add REDUNDANT_DEVICE Object
Add DDE Object
Add ArchestrA Object
Add OPC Object
Add InTouch Object
Archive Configuration Set
Clear Configuration Set
Use Another Configuration Set
Delete Configuration Set
View
Help
ArchestrA.DASMBTCP.2
ArchestrA.DASMTFXNet.1
xilic4
1234567890123456
Redundancy_test
TOVGalaxy
wonderware
workgroup
Log Viewer
Platform Manager
Node Type: $ROOT$ Delimiter:
Global Parameters
Device Group Update Interval (msec): 1000
Slow Poll Interval (msec): 10000
Transaction to Subscription Ratio: 2
Transaction Message Timeout (msec): 60000
Server Protocol Timer (msec): 50
Diagnostic Backlog Size: 20
Maximum Queued Transactions: 75
Maximum Queued Updates: 1
DDE/SuiteLink Timer Tick (msec): 50
Poke Mode: Optimization Mode
Enable/Disable
Case Sensitive
Device Group Cache
Simulation Mode
System Items
Unique Device Groups
Adds a REDUNDANT_DEVICE Object under this hierarchy level

FIGURE 10: ADD REDUNDANT DEVICE OBJECT

2. From the Redundant Device Object configuration window, browse the InTouch objects you have created as primary and backup, then add them respectively (Figure 11 below).

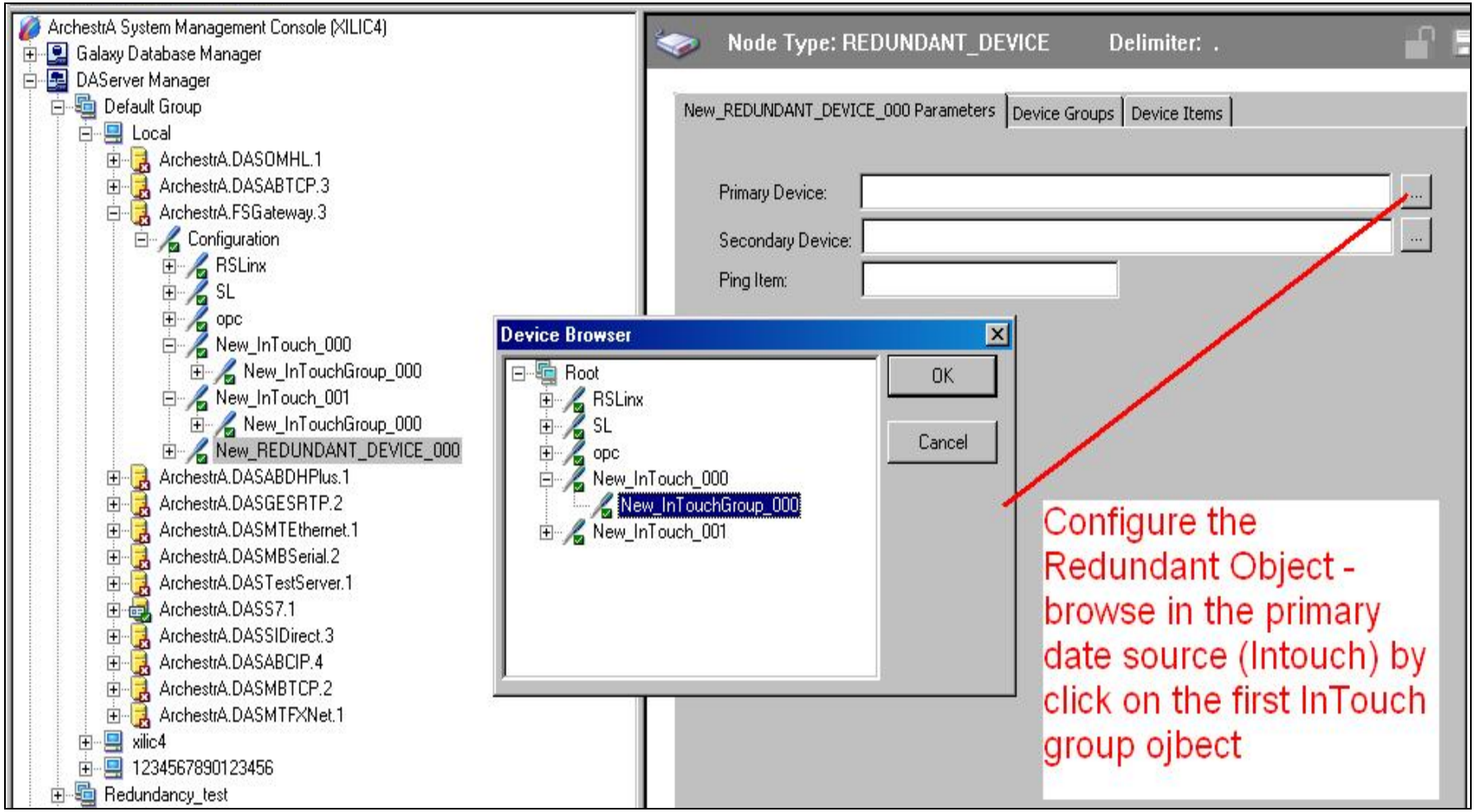

FIGURE 11: BROWSE TO PRIMARY AND SECONDARY INTOUCH OBJECTS

In this example, the Primary Device is called **New_InTouch_000.New_InTouchGourp_000**. The Secondary (Backup) Device is called **New_InTouch_001.New_InTouchGourp_000**. Later we will observe from these device names to identify which device is active and which is inactive (in backup mode).

3. Last, select a **Ping Item** for the Redundant Device Object (Figure 12 below).

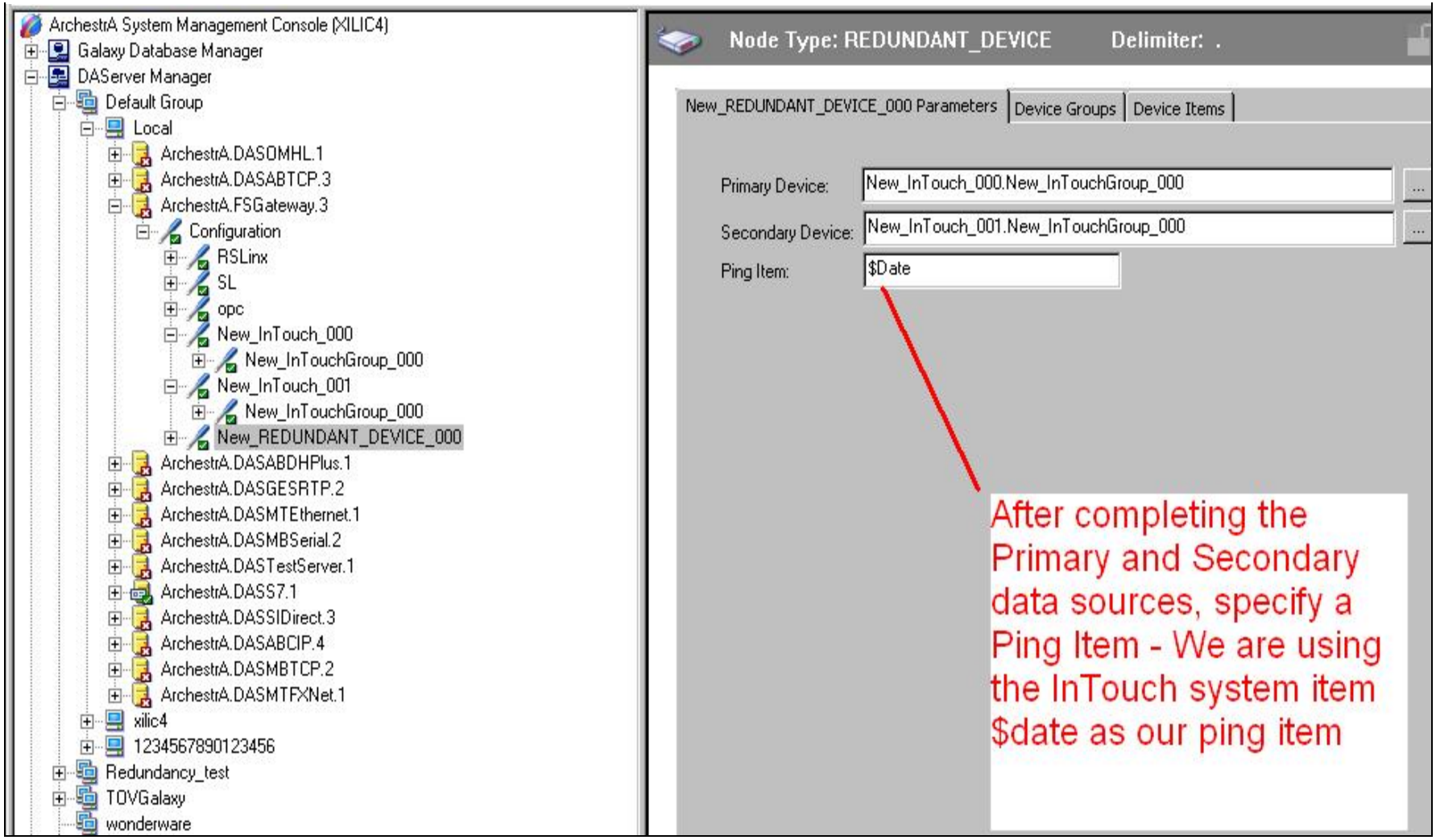

FIGURE 12: PING ITEM $DATE

The Ping Item keeps both primary and backup input source alive, even when the data is not pulled from that side. For example, if the redundant object pulls the data from primary side, no items pulled from the backup side. Without the ping item, the Redundant object does not know if the backup object is available or not, in order to failover.

Figure 13 shows the completed redundant object.

4. Activate the FSGateway.

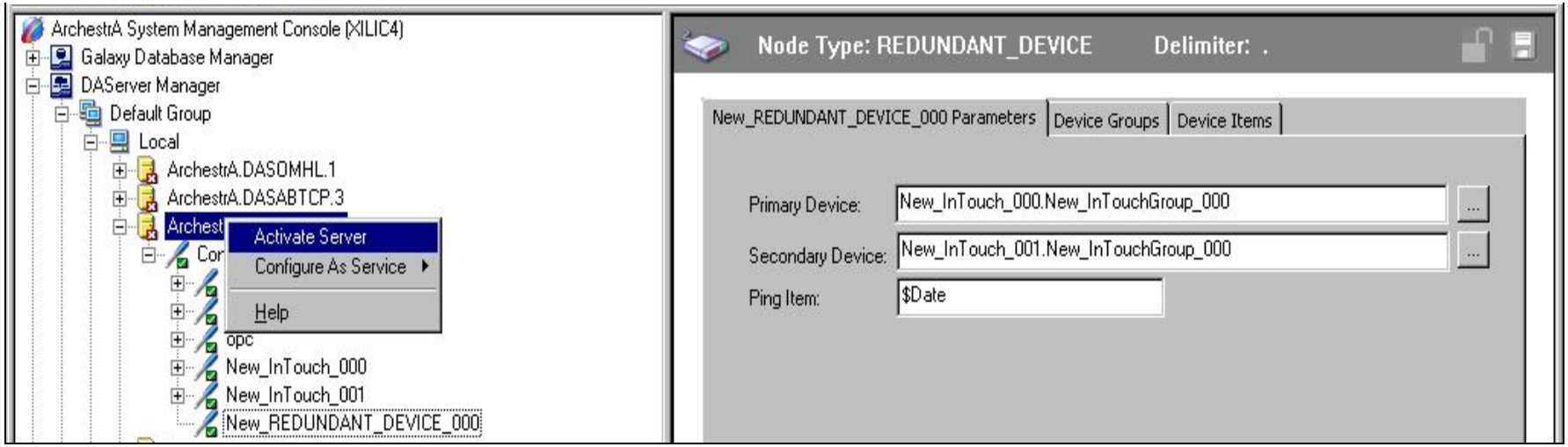

FIGURE 13: ACTIVATE FSGATEWAY SERVER

Testing the FSGateway OPC Server with Redundant InTouch Sourece

To test the FSG OPC server with redundant IT source, you will need an OPC client software. There are many available such as Matrikon Explorer, Kepware OPC test client, etc.

In this *Tech Note*, we use the Matrikon Explorer.

1. Download the Matrikon Explorer free from the Matrikon website. It is located in **OPC Tools**.
2. Install it on the FSGateway node, then start it up, click **Server**, and choose one of the available OPC servers on that node.

   In this example, pick **FSGateway** and then click **Connect** (Figure 14 below).

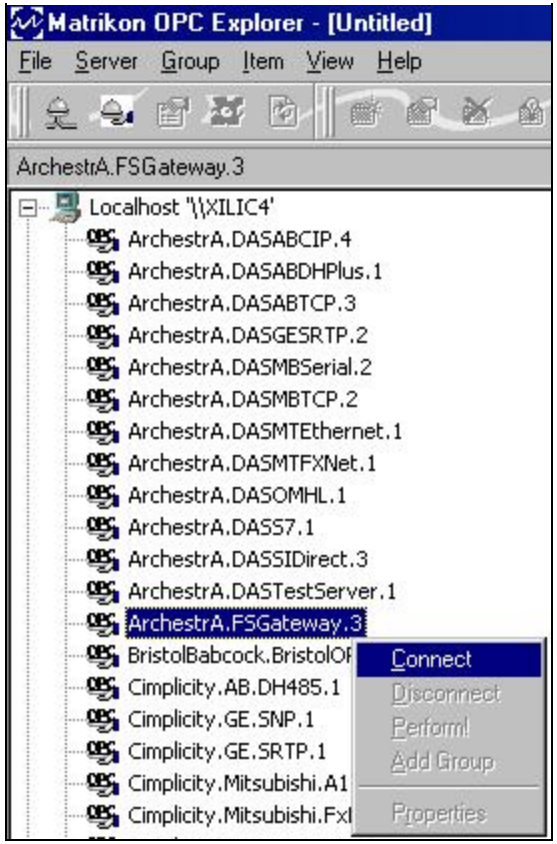

FIGURE 14: CONNECT WITH THE FSGATEWAY SERVER

Once connected, the Connect option is disabled, and at the bottom of the Matrikon Explorer window you will see the Connected OPC Server name, status (Connected) and state (Running).

Then click the **Add Group** (Figure 15 below).

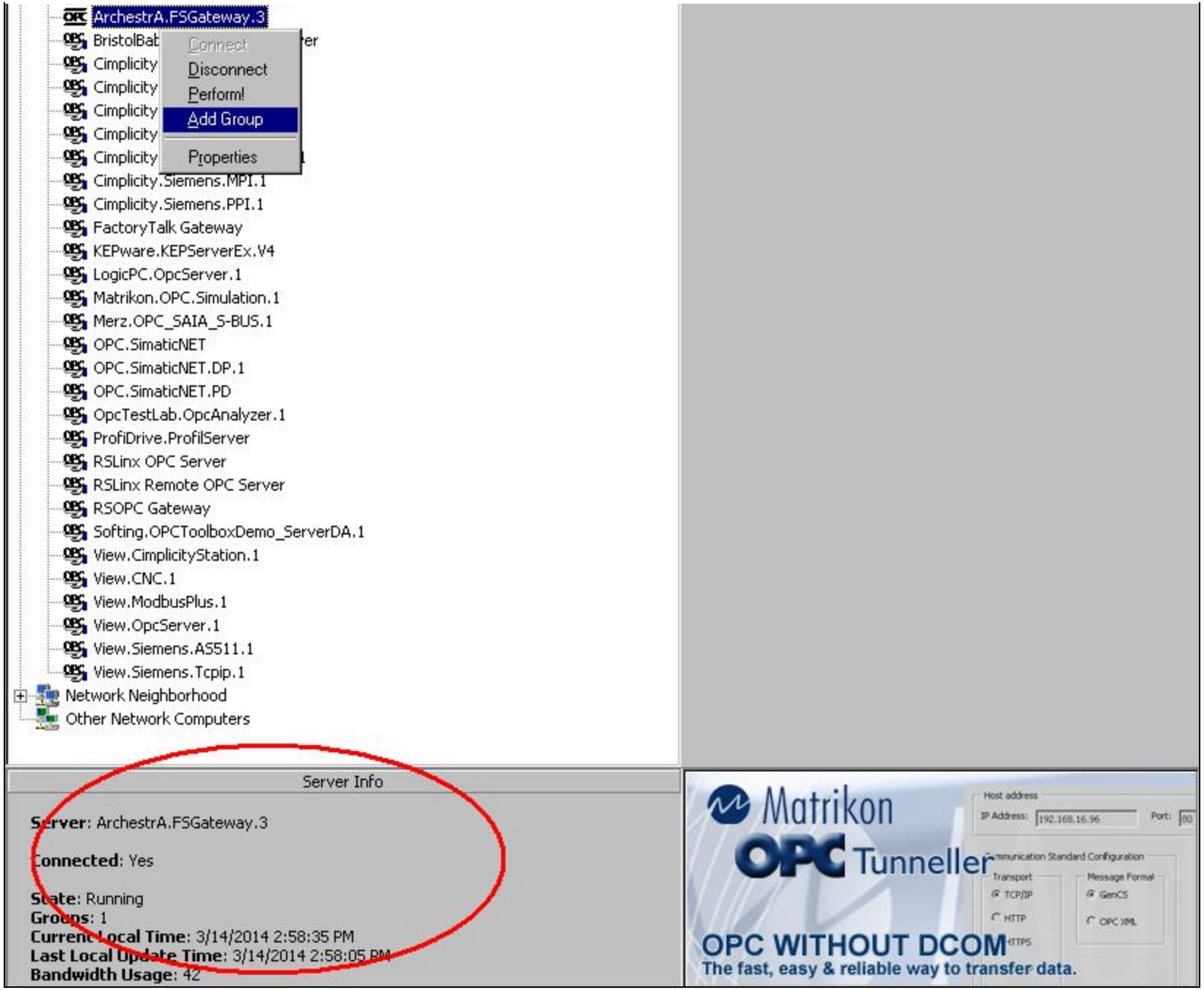

FIGURE 15: OPC SERVER STATUS

3. Add a group and call it **Test**.
4. Add an item from the OPC server (Figure 16 below) by clicking **Add Item**, and then browsing to available item from the OPC

Server panel (FSGateway)

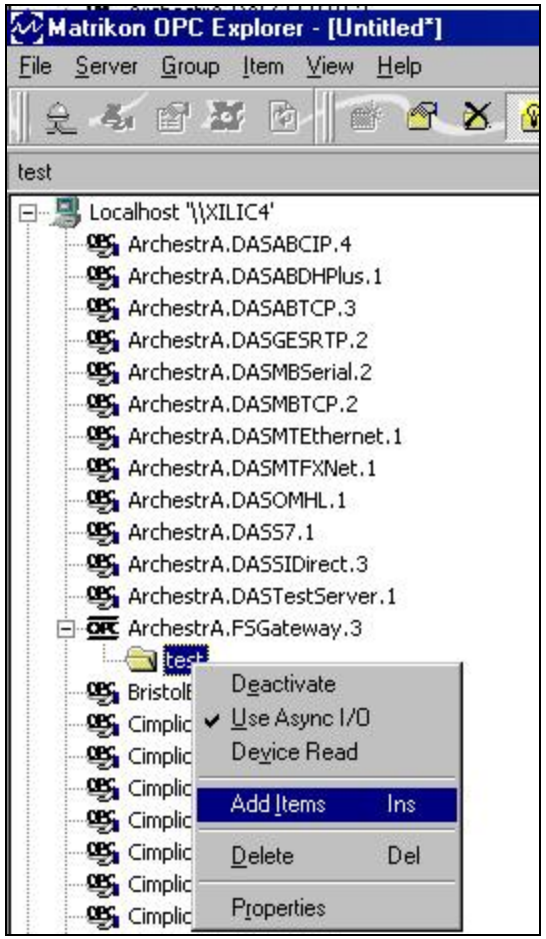

FIGURE 16: ADD ITEM

5. Browse to an item in the FSGateway tree and add the item to the advice list (Figure 17 below).

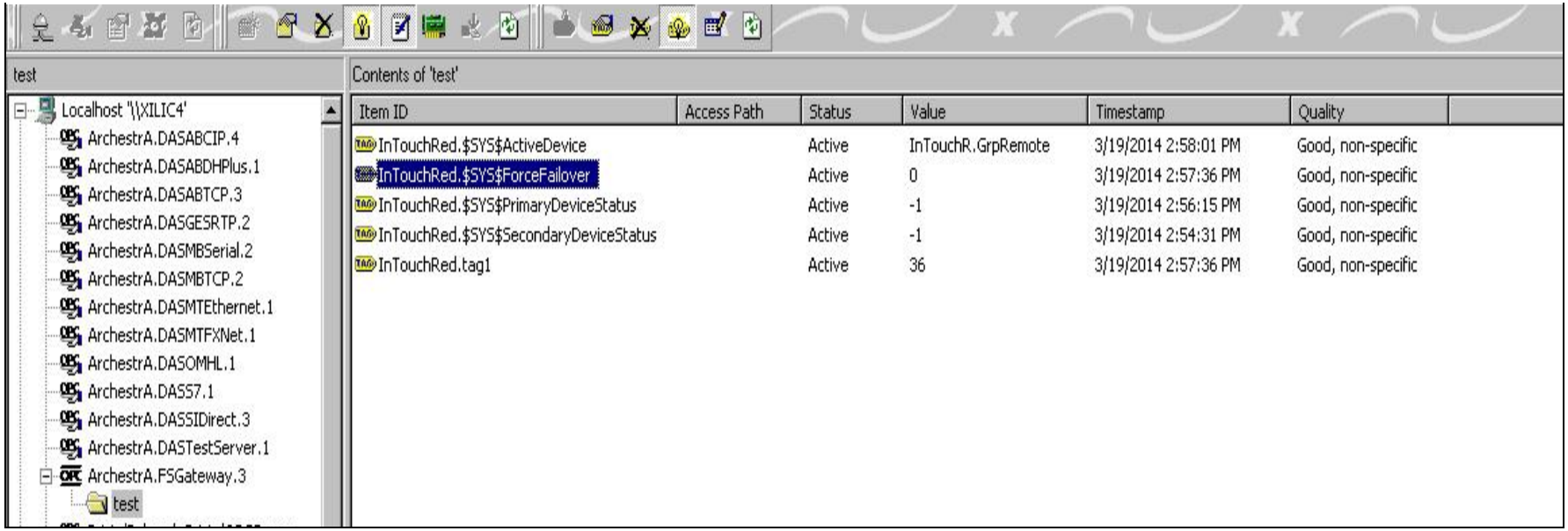

FIGURE 17: BROWSE AND ADD TAG1 FROM THE OPC SERVER (FSGATEWAY RED OBJECT)

6. Click **Validate** and look for the data updates.

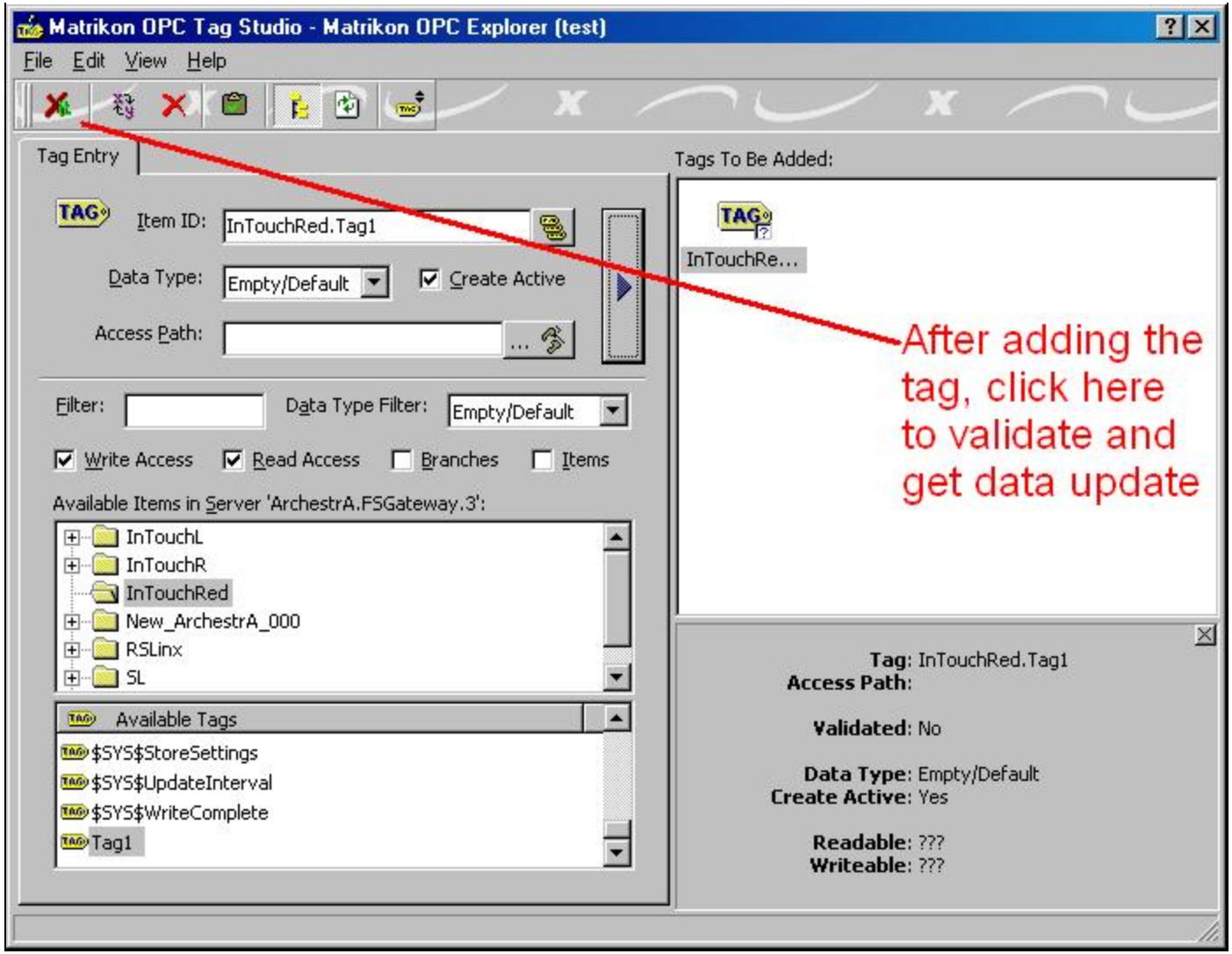

FIGURE 18: VALIDATE TO GET DATA UPDATE

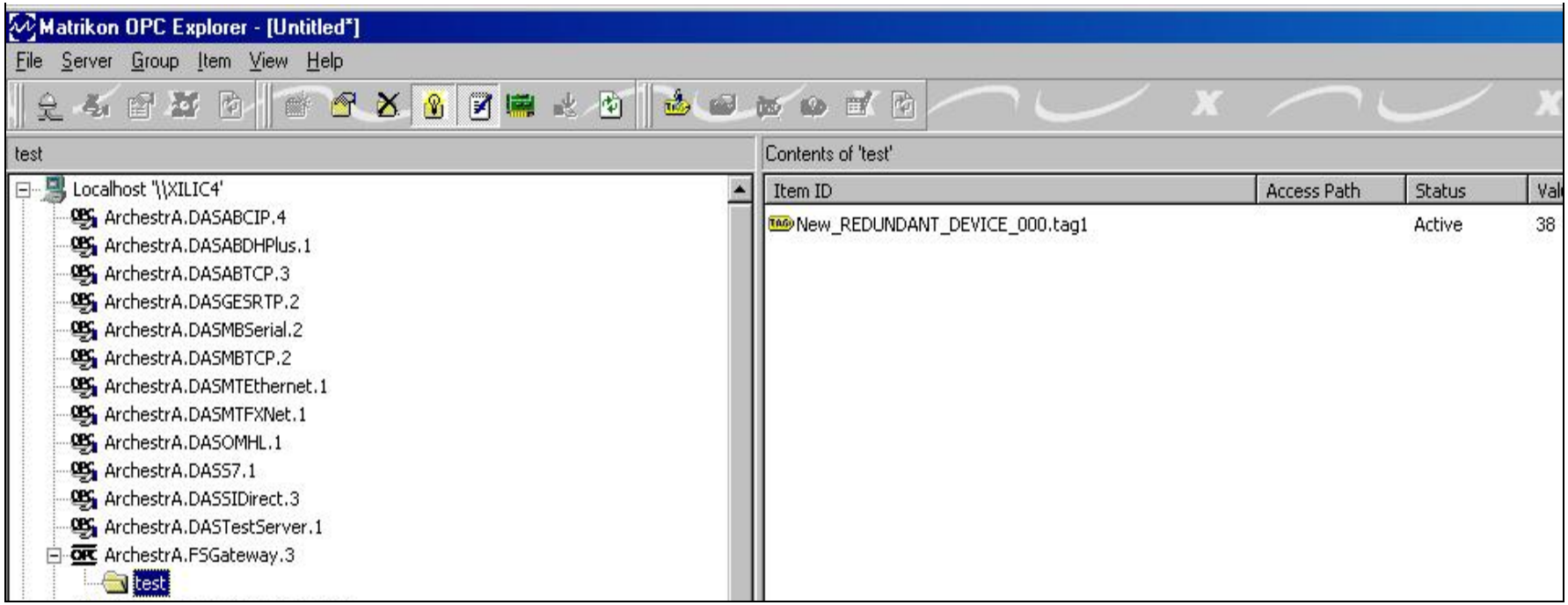

FIGURE 19: SHOWING THE ITEM TAG1 UPDATES

You may add additional items from the FSGateway redundant object for monitoring and testing purposes, for example adding the **sysActiveDevice** to show which input source is currently active.

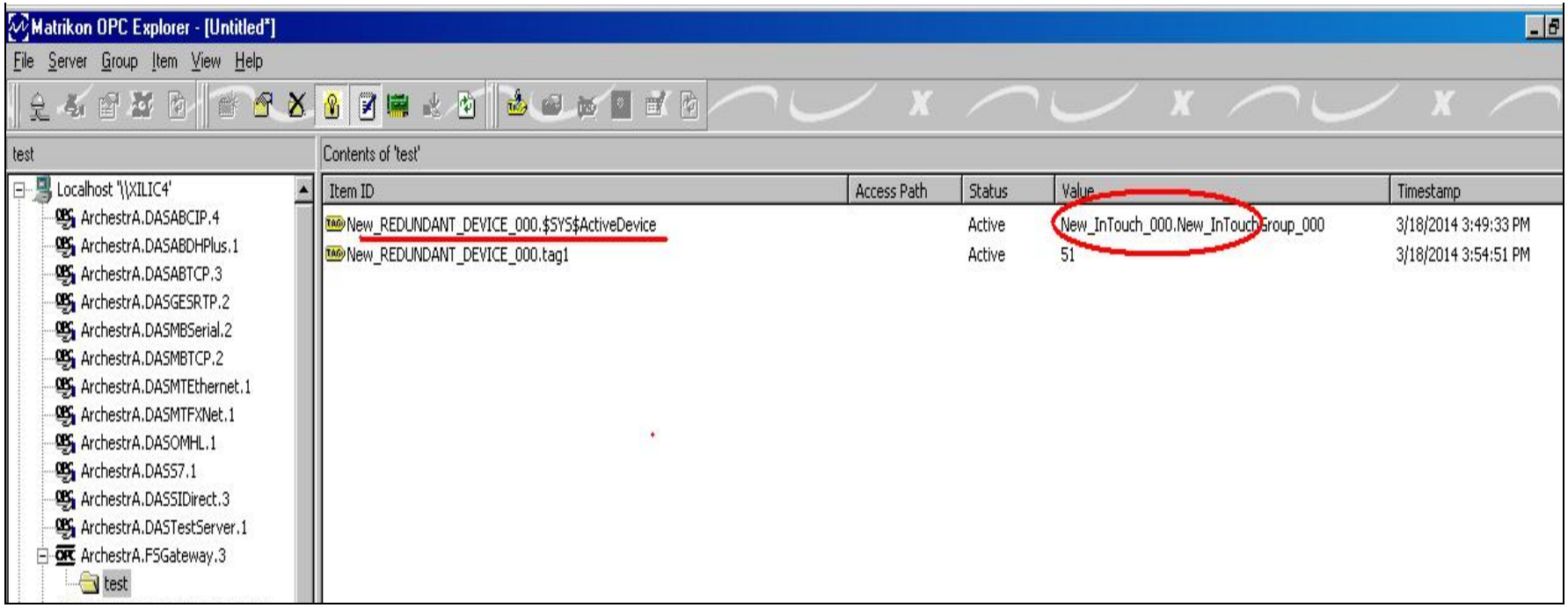

FIGURE 20: THE PRIMARY DEVICE NEW_INTOUCH_000 IS CURRENTLY ACTIVE

7. Next, shutdown the InTouch application in the *Primary* node. Observe that the **sysActiveDevice** has now updated to the backup input source: **New_InTouch_001** is now the active device (Figure 21 below).

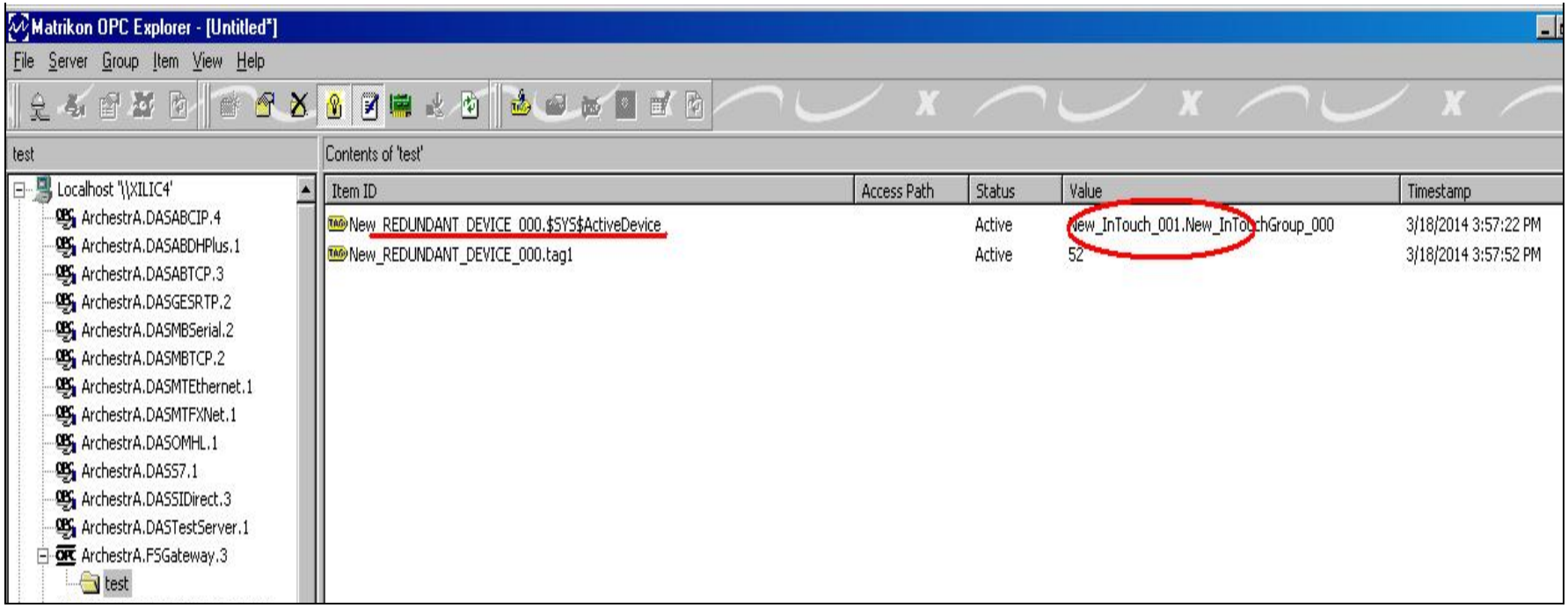

FIGURE 21: SYSACTIVEDEVICE

Troubleshooting Tips

One of the common mistakes that the user may encounter is missing the Device Groups under the FSGateway InTouch object, if no custom Device Group is create, the InTouch object will use default device group name **Default**, however as you can see in Figure 22, that the Redundant object will not recognize InTouch object without group as supported device.

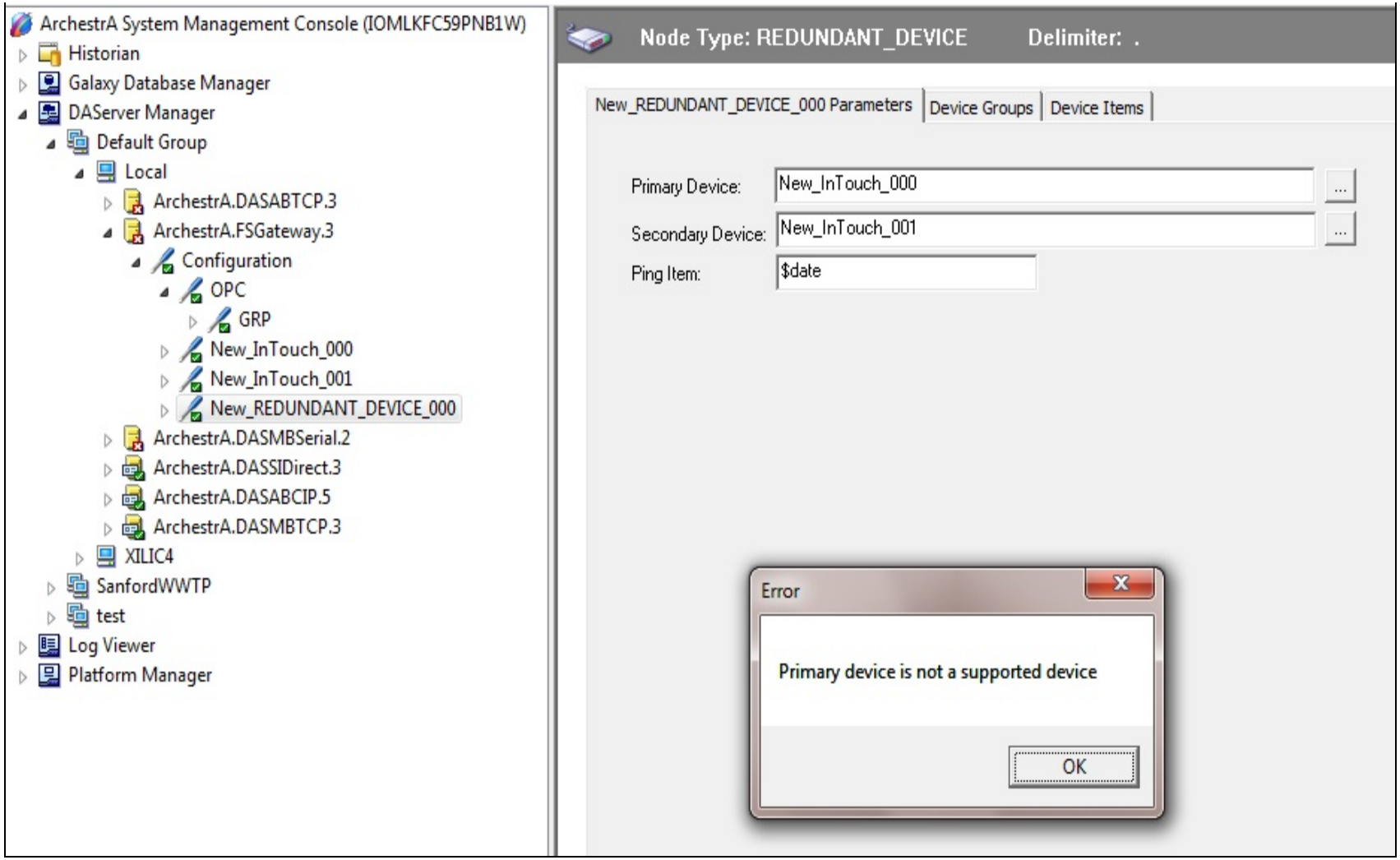

FIGURE 22: DEVICE NOT SUPPORTED WITHOUT DEVICE GROUPS

Ping Item Status Stays BAD

Issue

After the InTouch source fails and recovers, the ping item to the remote InTouch object in the Redundant Device quality status stays **BAD**.

Wonderware tests show that when you force the InTouch application shutdown in the Remote node, the redundant device object fails over to the backup InTouch source. Then, after restarting the InTouch app in the Remote node, the ping item quality stays **BAD** even though the InTouch in the Remote node is running again.

Cause

This symptom is due to the parameter setting in the Redundant Device object called Reconnect Attempt, was by default set at 3, meaning the redundant object will only try to reconnect to a data source 3 times then give up. So by the time the InTouch is recovered, the Red has given up and no longer try to reconnect any more.

Resolution

To resolve this issue, all you have to do is modify the Reconnect Attempt setting to a **-1**. This means the Redundant object will keep trying (unlimited times) until reconnection is accomplished (Figure 23 below).

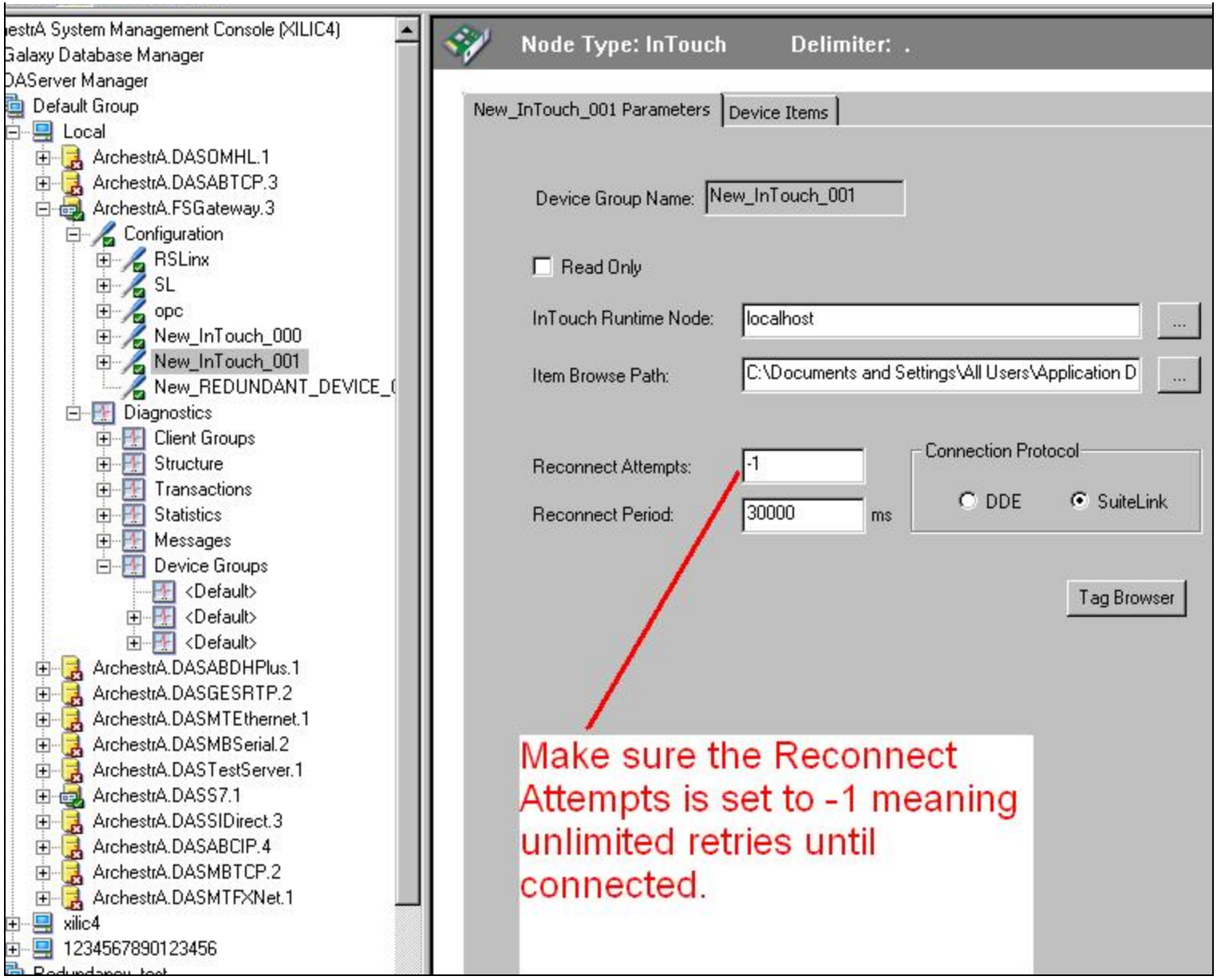

FIGURE 23: SET RECONNECT ATTEMPTS TO -1

A. Chaque

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