

## [Tech Note 916](#)

# Platform X Exceed Maximum Heartbeats Timeouts

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Topic#: 002729

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## Introduction

The communication error message **Platform X exceed maximum heartbeats timeout of Y ms** occurs when the response time between platforms is greater than the Message Exchange time set in the IDE's Platform configuration.

ArcheStrA IDE

Galaxy Edit View Object Window Help

Template Toolbox

Test43610566

GR

General Engine Alarms Platform History Scheduler History Engine History Object Information

Network address: PIRIYAK10

History store forward directory:

Minimum RAM: 1024 MB

Statistics average period: 10000 ms

InTouch alarm provider

Enable InTouch alarm provider

Register using "Galaxy\_<Galaxy name>" instead of "Galaxy"

Alarm areas (blank for all):

Redundancy

Redundancy message channel IP address:

Redundancy message channel port: 30001

Redundancy primary channel port: 30000

Message Exchange

Message timeout: 30000 ms

NMX heartbeat period: 2000 ms

Consecutive number of missed NMX heartbeats allowed: 3

Message exchange port: 5026

Object Viewer

File Edit View Options Help

Attribute Reference: GR.\_Attributes[]

Attribute Name	Value
NetNMXBytesSentAvg	9311.15
NetNMXDisconnectCnt	0
NetNMXDisconnected	false
NetNMXHeartbeatPeriod	2000
NetNMXHeartbeatsMissedCnt	0
NetNMXHeartbeatsMissedConsecCnt	0
NetNMXHeartbeatsMissedConsecMax	3
NetRMCAAddr	
NetRMCDDisconnectCnt	0
NetRMCDDisconnected	false
NMXLocalMsgsCnt	36
NMXMsgMxTimeout	30000
NMXProtocolVersion	1.0
NMXRequestsRcvdOffNodeAccumSize	0
NMXRequestsRcvdOffNodeCnt	0
NMXRequestsRcvdOffNodeSizeMax	0
NMXRequestsSentOffNodeAccumSize	0
NMXRequestsSentOffNodeCnt	0
NMXRequestsSentOffNodeSizeMax	0
NMXResponsesRcvdOffNodeAccumSize	0
NMXResponsesRcvdOffNodeCnt	0
NMXResponsesRcvdOffNodeSizeMax	0
NMXResponsesSentOffNodeAccumSize	0
NMXResponsesSentOffNodeCnt	0
NMXResponsesSentOffNodeSizeMax	0
NodeName	PIRIYAK10
PageFaultsAvg	1214.407
PageFaultsMax	61...

AttributeReference

Value

Watch List 1

Ready

FILE: User: DefaultUser

Deployment

Test43610566

- Unassigned Host
- GR
  - AppEngine\_001
  - Area\_001
  - ViewEngine\_001
  - ViewEngine\_002

**FIGURE 1: PLATFORM MESSAGE EXCHANGE SETTINGS**

Formula for calculating Maximum Heartbeat Timeout:

```
Maximum Heartbeat Timeout
=
WinPlatform.NetNMXHeartbeatPeriod x (WinPlatform.NetNMXHeartbeatsMissedConsecMax + 1)
```

By default, this value is **8000** ms [2000 x (3 + 1)].

18506...	12/4/2012	1:02:08 AM	4064	1384	Warning	NmxSvc	Platform 3 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	1:02:08 AM	4064	1384	Warning	NmxSvc	Platform 10 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	1:02:09 AM	4064	1384	Warning	NmxSvc	Platform 11 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	1:02:09 AM	4064	1384	Warning	NmxSvc	Platform 4 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	1:02:09 AM	4064	1384	Warning	NmxSvc	Platform 13 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:02:08 AM	4064	1384	Warning	NmxSvc	Platform 10 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:02:09 AM	4064	1384	Warning	NmxSvc	Platform 13 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:02:09 AM	4064	1384	Warning	NmxSvc	Platform 3 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:02:09 AM	4064	1384	Warning	NmxSvc	Platform 6 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:02:09 AM	4064	1384	Warning	NmxSvc	Platform 11 exceed maximum heartbeats timeout of 8000 ms.
18506...	12/4/2012	4:18:47 AM	4064	1384	Warning	NmxSvc	Platform 2 exceed maximum heartbeats timeout of 8000 ms.

**FIGURE 2: PLATFORM X EXCEED MAXIMUM HEARTBEATS TIMEOUT OF Y MS**

If the communication error message appears occasionally, for example once every few days, then it may not be affecting your production environment and it may not be important to try to fix it.

However, if the SMC is flooded with this message frequently in a 24 hour period, the platform communication may be suffering from the timeout issue. This means that data may not be transferring in a timely manner between the Platforms. If this is the case, the issue should be addressed at the earliest possible time.

This *Tech Note* provides troubleshooting guidelines for the **Platform X exceed maximum heartbeats timeout of Y ms.** message.

## Application Versions

- Wonderware Application Server 3.1 and later

## Troubleshooting Guidelines

The following guidelines are intended to be completed in the order they appear. The suggestions provided are sorted by the most common problems to the least.

### 1. Check the Time Synchronization between Platforms

- As a good practice, configure the computers in a Galaxy to synchronize time at regular intervals. The time difference between the nodes should never exceed the duration mentioned in the heartbeats message (ex. 8000 ms in Figure 2 above). Wonderware recommends the Historian node as the best time-sync Master node.

### 2. Stop and Start the Bootstrap Service on the Platform on which the message appears.

3. Undeploy and Redeploy the Platform Object for the Problem Platform.
4. Reboot the machine connected to the Platform.
5. Turn off the Firewall on the Platform.
6. Turn off **iPv6** on the Platform.
7. All Platforms should be under the same domain/workgroup.
8. Sometimes, the Platform timeout occurs if the Platform's CPU load is too high. The CPU load for a computer should not exceed 30- to 40% in a system with load balancing, or 50- to 60% without load balancing. Monitor the load on the CPU and reduce the load if it above the recommended range.
9. Use **Add/Remove Programs** to verify that the .NET Framework versions on all machines are the same.
  - To find out the required version of .NET Framework, refer to the ReadMe file of Wonderware Application Server that is installed on the machine.
10. Verify that the Service Pack and Patch level applied on all nodes are the same. If the platforms SP or Patch do not match, the heartbeat issue may occur.
11. If there are Anti-virus software installed, disable it temporarily. Make sure that the anti-virus exclusion list is set properly as per the ReadMe files of Wonderware software.
12. Make sure that all platforms including the GR are on the same subnet.

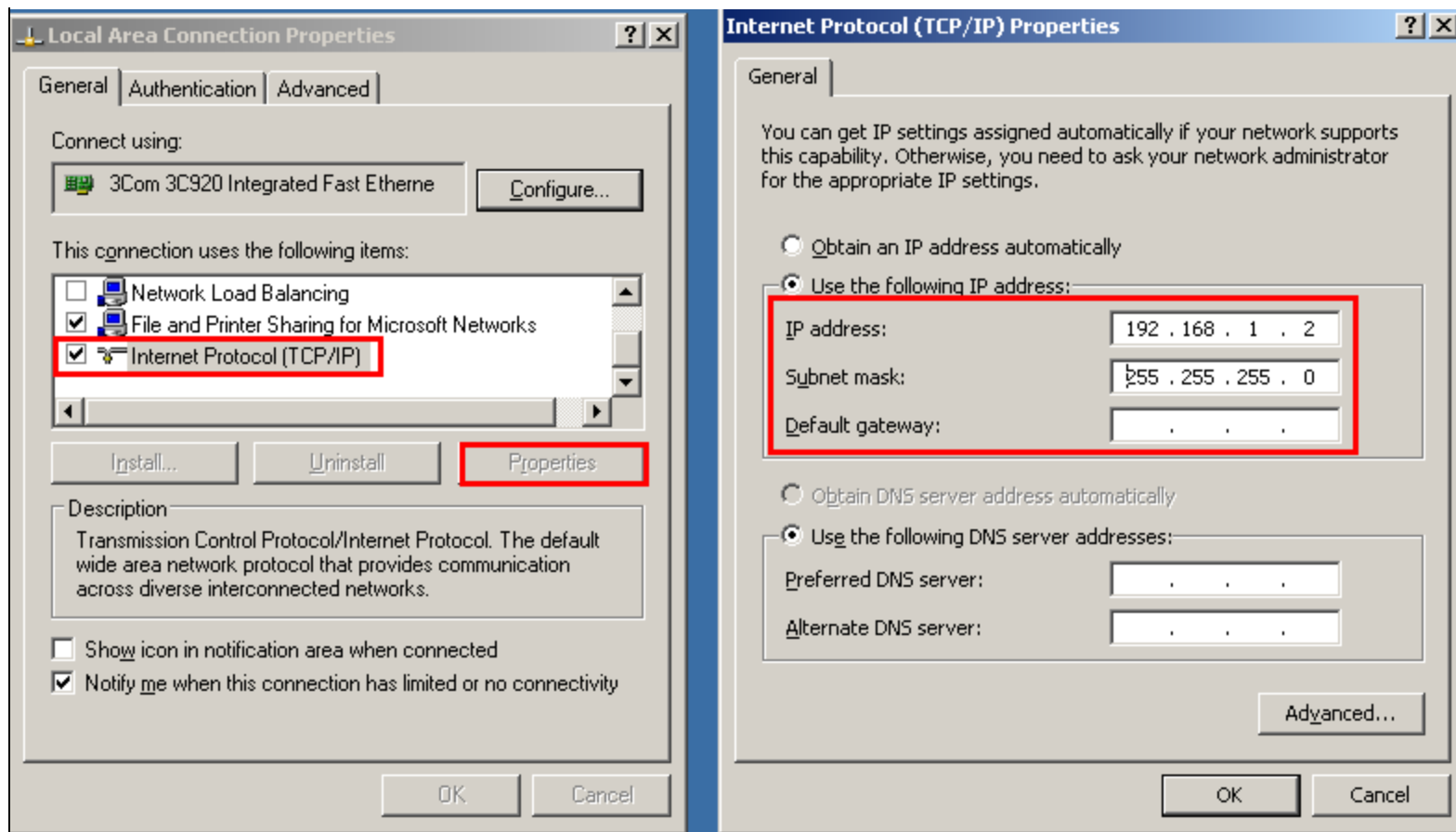
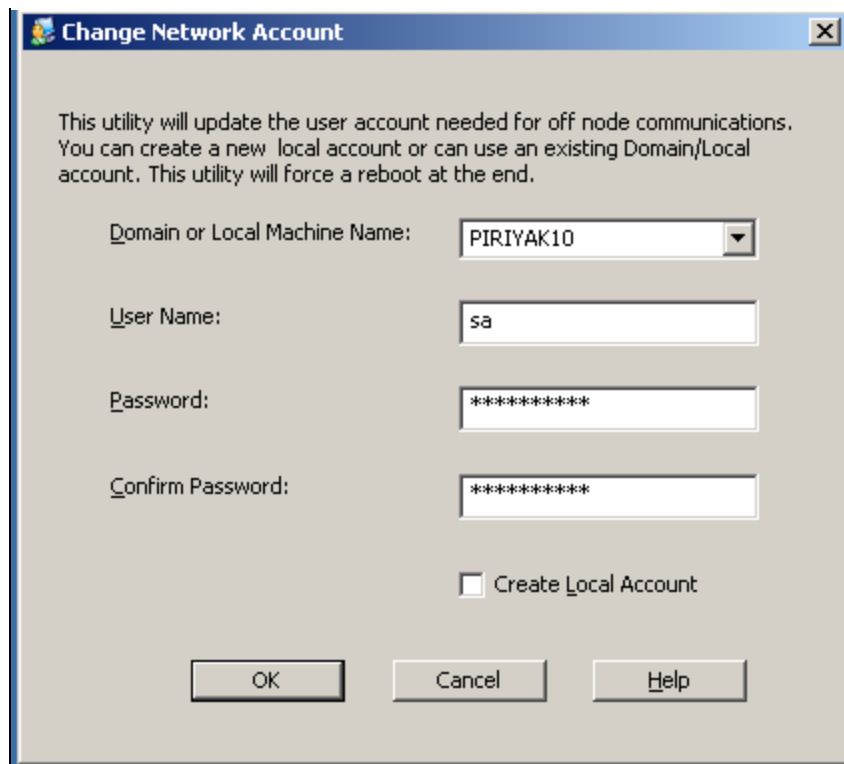


FIGURE 3: SUBNET CONFIGURATION

13. The heartbeat message can appear when there is an issue with the network. The problem could be due to multiple NICs, or the cables may not be working properly.
  - Test the cable and networking equipment (hub or switch) on another system to ensure that it works correctly.
  - Check if the binding order is set properly on your machines. The binding order should be configured so that the Archestra network is FIRST.
  - Refer to the following tech notes:
    - Tech Note 368 Network setup for AppEngine Redundancy.
    - Tech Note 773 Checking Binding Order on a Windows Server 2008 SP2 & R2.
14. Run the Change Network Account utility on both the machines and make sure that they have the same user name and password.
  - To do this, go to **Start -> Programs -> Wonderware -> Common -> Change Network Account**.



**FIGURE 4: CHANGE NETWORK ACCOUNT**

15. Check DCOM settings and ensure that **Enable DCOM** is checked on the machine.
  - For Windows 2000 Server and Windows Server 2003 with all Service Packs and Releases, refer to Tech Note 461 – Troubleshooting Industrial Application Server Bootstrap Communications.
  - For Windows Server 2008 and Windows 7, Refer to Tech Note 876 – Troubleshooting Industrial Application Server Bootstrap Communications. (This newer version covers the latest operating systems).
16. On the Alarm Provider Platform it could be that one of the areas specified under **InTouch Alarm Provider** is taking too long. The Alarm provider has a heart beat connection to all areas.
  - Uncheck **InTouch Alarm Provider** as a test. Note that no alarms would be reported during the test. If the heartbeat timeouts stop as a result, then the problem is due to one of the areas.
  - If the alarm provider area field is blank and all providers are querying all areas at all times and it doesn't have to be so, different areas can be specified to different providers.
17. If the machines are on a WAN, it could cause them to sync up slowly. Consider moving them to LAN.
18. Modify the Message Exchange settings as shown in the following table:

Object	Default Value	Recommended Value	Comments
WinPlatform			

## Platform X Exceed Maximum Heartbeats Timeouts

Message time-out	<b>30,000 ms</b>	<b>300,000 ms</b>	Increase to avoid timeouts when deploying larger number of instances
NMX Heartbeat period	<b>2000 ms</b>	<b>2000 ms</b>	
Consecutive number of missed NMX heartbeats allowed	<b>3</b>	<ul style="list-style-type: none"><li>• <b>4</b> (Automation Object Server)</li><li>• <b>4</b> (Galaxy Repository)</li><li>• <b>4</b> (Visualization node)</li></ul>	Increase to avoid false failovers in large systems

For further details on Message Exchange Settings, refer to the FS A2 Deployment Guide – Improving Communication with Remote Nodes.

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[Back to top](#)

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