



BioStar Config Guide

V1.0



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Contents

CONTENTS	3
INTRODUCTION	4
WHY BIOSTAR CONFIG?	4
INSTALLING BIOSTAR CONFIG.....	4
HOW TO USE THE GUIDE?	4
CONFIGURING NETWORK SETTINGS	5
SEARCHING DEVICES IN A LAN	5
ASSIGNING AN IP ADDRESS	6
SERVER/DIRECT MODE	6
SEARCHING DEVICES CONNECTED BY RS485.....	7
ADVANCED SEARCHING FUNCTIONS.....	7
CORRECTING INVALID IP CONFIGURATIONS.....	7
MISC. FUNCTIONS	8
<i>Adding a device in a different network.....</i>	<i>8</i>
<i>Changing network settings of multiple devices.....</i>	<i>8</i>
INSPECTING EVENT LOGS.....	10
READING EVENT LOGS.....	10
NETWORK EVENTS.....	10
SAVING AND LOADING EVENT LOGS	11
TESTING NETWORK CONNECTIONS.....	12
PING TEST	12
NETWORK TEST	13
CAPTURING PACKETS	14
NETWORK TROUBLESHOOTING GUIDE	16
PROBLEM TYPES.....	16
TROUBLESHOOTING CASES	16
<i>Cannot ping the device.....</i>	<i>16</i>
<i>Cannot search the device.....</i>	<i>18</i>
<i>Cannot connect to the device.....</i>	<i>20</i>
<i>Connection lost.....</i>	<i>21</i>
<i>Intermittent communication errors.....</i>	<i>22</i>
APPENDIX 1. SERVER/DIRECT MODE	24

BioStar Config is a simple utility for diagnosing and troubleshooting BioStar systems. You can search devices, configure network settings, inspect event logs, and troubleshoot network problems.

Why BioStar Config?

BioStar Config will help you overcome a variety of network problems that might be encountered with BioStar devices. You may be able to resolve many of them by following the guidelines in this manual. Even if a solution cannot be found immediately, it would expedite the technical support process by narrowing down the possible causes of the problem. You may also get a deeper understanding of how BioStar systems work in a networking environment.

Installing BioStar Config

BioStar Config is distributed as a single zip file. You only have to uncompress it to a directory, and run the **BioStarConfig.exe** file.

Note: The following functions of BioStar Config are implemented using WinPcap library.

- **Adv. Search** and **Detect** functions in the **Network** tab
- **Capture** function in the **Troubleshooting** tab

To use these features, you have to install WinPcap 4.1.3 or later. You can download it from <http://www.winpcap.org>. If WinPcap is not installed, an error dialog will be popped up when you are trying to use any of the above functions.

How to Use the Guide?

This guide consists of two main parts. First three chapters explain how to use the main functions of BioStar Config. The last chapter provides common troubleshooting cases and shows how to use BioStar Config to tackle each problem.

- **Configuring Network Settings** describes how to search and configure devices.
- **Inspecting Event Logs** explains the log viewer functionality of BioStar Config.
- **Testing Network Connections** describes how to test the network reliability and capture packets for further analysis.
- **Network Troubleshooting** lists common network problems and their troubleshooting procedures.

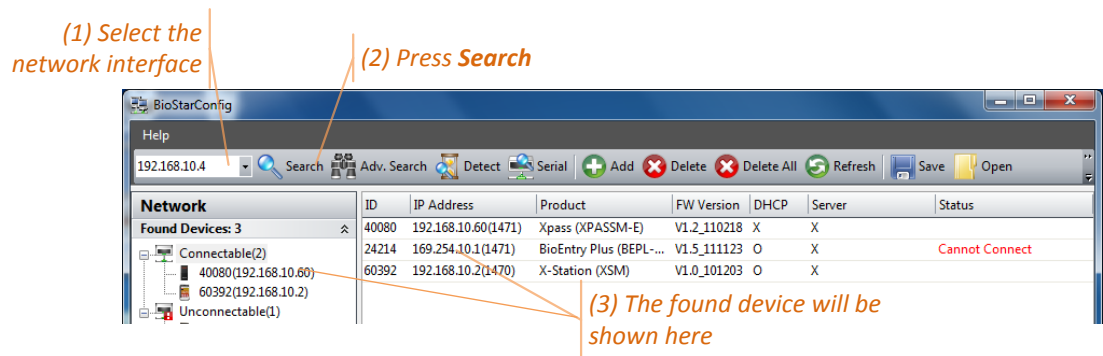
As an appendix, **Appendix 1. Server/Direct Mode** explains the differences between server and direct mode connections.

Using BioStar Config, you can search devices even if their network settings have some errors. You can also change common settings of multiple devices in a single operation.

To use BioStar devices, you have to configure their network settings first. In normal cases, you should have no problem to add and configure new devices in BioStar software. However, if you have any problems related to network configuration, BioStar Config can be used to resolve them.

Searching Devices in a LAN

- 1 If you have multiple Ethernet cards in the PC, select the network interface first.
- 2 Press **Search** in the menu bar. BioStar Config will try to find out all the devices connected to the same LAN with the selected network interface of the PC.
- 3 The found devices will be listed in the device list. They are also added to the device tree in the left panel.



Note: There are two cases when a device is unconnectable.

- If the device is already connected to the BioStar server or any other software, BioStar Config cannot connect to it. If you still want BioStar Config to connect to the device, you have to close the existing connection first.
- If the IP address of the device is not assigned properly, it is unconnectable. For example, if a device cannot acquire an IP address from DHCP server, the temporary address of 169.254.10.1 will be assigned. See [Assigning an IP Address](#) to how to handle this case.

Note: The default searching function uses the UDP port of 51110. Make sure that BioStar Config or the UDP port of 51110 should be in the exception list of any firewall software you are using.

Assigning an IP Address

There are two ways to assign an IP address to a device – DHCP or static IP. DHCP makes network configuration much easier. You don't have to configure other parameters such as subnet mask and gateway. If your LAN has a DHCP server, all you have to do is to plug an Ethernet cable to the device.

However, DHCP has its own drawbacks - the IP address of a device can be changed. When an IP address is assigned by a DHCP server, it has a limited lease time. Before the lease time expires, the device has to reacquire an IP address. Depending on the configuration of DHCP server, the new IP address can be different from the old one. Since the BioStar server does not know this change, it will result in connection loss. With server mode, the device will reconnect to the server automatically. However, in direct mode, you have to remove the device first and add it again. For the differences between the server and direct mode, refer to [Appendix 1. Server/Direct Mode](#).

By default, BioStar devices are set to use DHCP to get an IP address. If a DHCP server is not available, a temporary address of 169.254.10.1 will be assigned to it. In this case, you have to assign a valid static IP address to the device.

- 1 Select a device whose IP address is 169.254.10.1.
- 2 Unselect **DHCP** and fill the **IP**, **Subnet**, and **Gateway** fields in the right-bottom panel.
- 3 Press **Apply**. It will take about 30 seconds for the device to renew its IP configuration. Press **Refresh** to check if the IP is assigned correctly.

The screenshot shows the 'Network' management interface. On the left, a tree view shows 'Found Devices: 3' with sub-items: 'Connectable(2)' (40080, 60392) and 'Unconnectable(1)' (24214). The main table lists devices with columns: ID, IP Address, Product, FW Version, DHCP, Server, and Status. Device 24214 has IP 169.254.10.1(1471) and status 'Cannot Connect'. Below the table, configuration panels for 'IP' and 'Server' are visible. The 'IP' panel has 'DHCP' unselected and fields for IP (192.168.10.3), Subnet (255.255.255.0), and Gateway (192.168.10.1). The 'Server' panel has 'Use Server' unselected and fields for Port No (1471) and Server IP. A 'Refresh' button is at the bottom right. Three orange callout boxes provide instructions: (1) points to the IP 169.254.10.1 in the table; (2) points to the 'DHCP' checkbox and IP/Subnet/Gateway fields; (3) points to the 'Apply' button.

ID	IP Address	Product	FW Version	DHCP	Server	Status
40080	192.168.10.60(1471)	Xpass (XPASSM-E)	V1.2_110218	X	X	
24214	169.254.10.1(1471)	BioEntry Plus (BEPL-...	V1.5_111123	O	X	Cannot Connect
60392	192.168.10.2(1470)	X-Station (XSM)	V1.0_101203	O	X	

Note: The above procedure is only applicable to BioEntry Plus, BioLite Net, and Xpass. For BioStation, D-Station, BioStation T2, and X-Station, you can change the IP address in the menu of the devices themselves.

Server/Direct Mode

You can also change the server mode setting of the device.

- 1 Select a connectable device.
- 2 To enable the server mode, select **Use Server** and enter the IP address and port number of the server. You can also check the **Time Sync with Server** option with which the time of

devices will be synchronized with that of the BioStar server.

- 3 Press **Apply**. If the configuration is correct, the device should connect to the server automatically.

Searching Devices Connected by RS485

A distinctive feature of BioStar is that it supports host and slave devices in RS485 networks. With this feature, only the host device must be connected to a PC via the LAN. The network can then be easily expanded by adding slave devices via RS485 connections.

- 1 Check if the RS485 lines are wired correctly. See the respective installation guides of the devices for details.
- 2 Check if the **RS485 Mode** settings are correct both in the host and slave devices. Please note that only one device can be a host in a RS485 network. And the maximum number of slave device is 8.
- 3 Press **Serial** button in the menu bar. It will try to search all the slave devices connected to each host device. The found devices will be displayed as a child items in the device tree.

Advanced Searching Functions

In the following cases, you may not find the devices with the default searching function.

- The IP address of the device is in a different subnet from the PC. For example, if your PC is in the subnet of 192.168.1.x and your device is in 192.168.10.x, you may not find the device.
- The device has an invalid IP address such as 0.0.0.0.

BioStar Config provides two additional search functions for detecting these devices. These options are most useful with BioEntry Plus or Xpass devices that cannot be detected using conventional methods.

- 1 Press **Adv. Search** button in the menu bar. BioStar Config will try to find devices using the ARP protocol.
- 2 If you still cannot find, press **Detect** button and reset the device. BioStar Config will monitor packets from the reset device, and try to find its IP address.

Correcting Invalid IP Configurations

Even if you can find devices using advanced search functions, you cannot change network settings directly. If the subnet of the device is different from your PC's, you can assign an IP address as follows.

- 1 Change the IP configuration of your PC so that it is within the same subnet of the device. For example, if the device is 192.168.10.100 and your PC is 192.168.1.100, you may change your PC's IP address to 192.168.10.101.
- 2 Restart BioStar Config and press **Search** button in the menu bar. Since your PC and the device are within the same subnet, BioStar Config should be able to find it now.

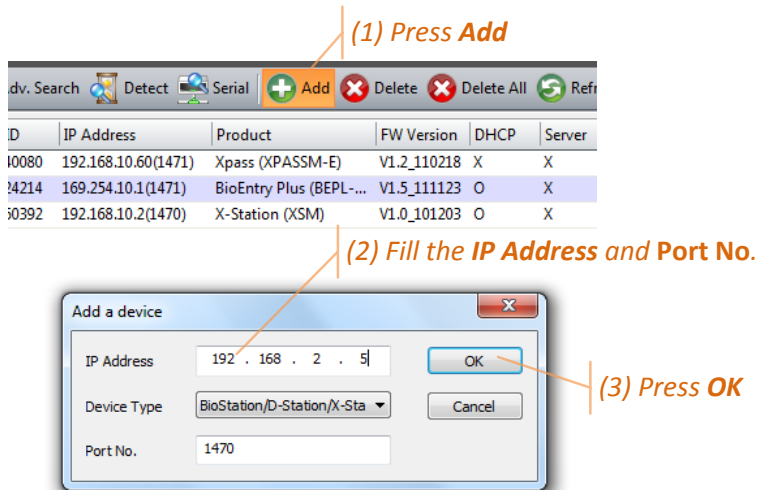
- 3 Assign a new and valid IP address to the device.
- 4 Revert your PC's IP address to the original value.

Misc. Functions

The **Network** window has some additional functions, which are useful for managing network configurations of devices.

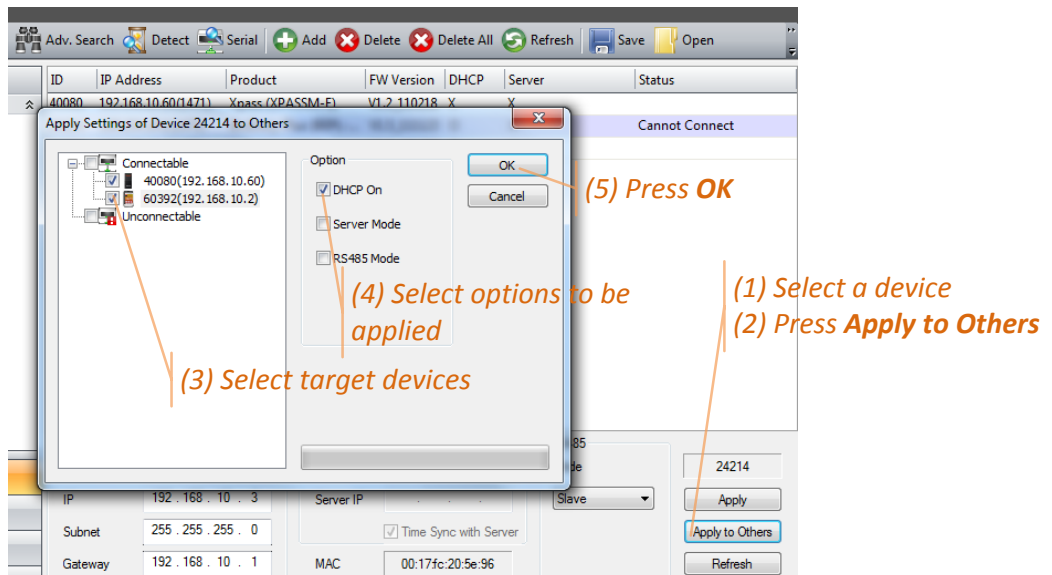
Adding a device in a different network

BioStar Config can find out devices only if they are in the same LAN with the PC. If you are to manage a device in a different network, you have to add it manually. Press **Add** button in the menu bar and enter its IP address and port number.



Changing network settings of multiple devices

You can apply the network settings of a device to multiple devices as follows.



- 1 Select a device whose network settings will be applied to other devices.
- 2 Press **Apply to Others** in the right bottom of the window.
- 3 Select the target devices to which the network settings are applied.
- 4 Select the network settings to be applied. The available options are as follows.

- DHCP On: DHCP will be enabled for the selected devices.
- Server Mode: The server mode setting of the device will be applied to the target devices.
- RS485 Mode: The RS485 setting of the device will be applied to the target devices.

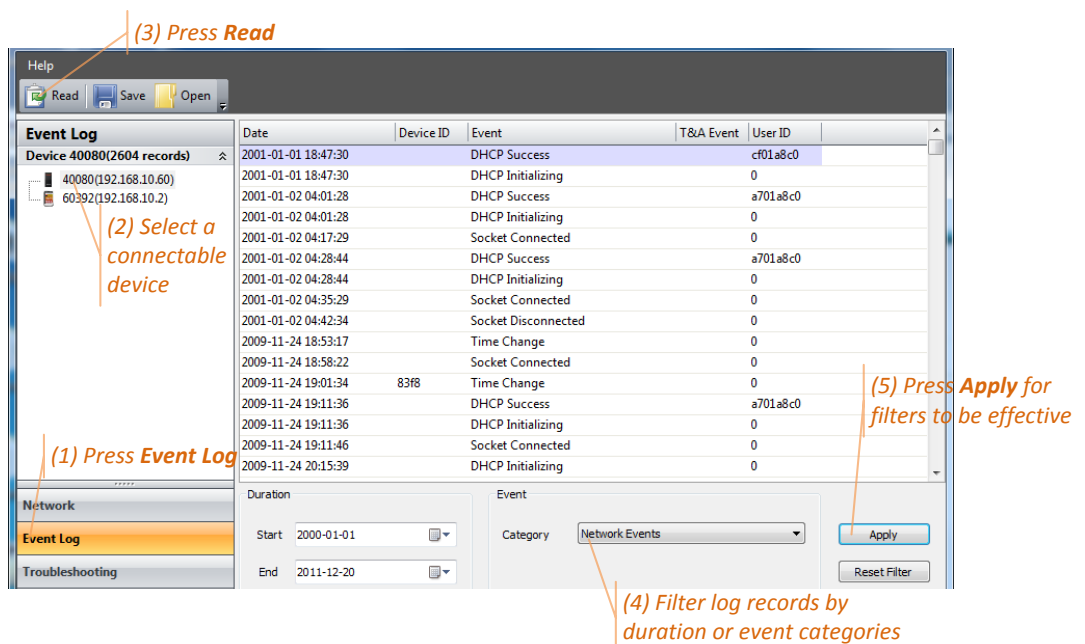
5 Press **OK**.

Event logs have valuable information to troubleshoot network related problems. BioStar Config provides basic functions for reading and saving log records.

Reading Event Logs

To read event logs, you have to search devices first. And, you can read event logs only from the connectable devices.

- 1 Press **Event Log** in the task bar. The connectable devices will be shown in the device tree.
- 2 Select a device in the device tree.
- 3 Press **Read** in the menu bar. The event logs will be displayed in the right panel.
- 4 You may filter event logs either by duration or category. For example, to inspect network-related events, select **Network Events** in the **Category**.
- 5 After configuring filters, press **Apply**. If you are to reset the filters, press **Reset Filter**.



Network Events

There are 11 types of network related events in the log. Among these, you have to focus on **Socket Disconnected**, **Server Socket Disconnected**, **Link Disconnected**, and **Zone Disconnected** events, which show networking problems.

Event	Description
Time Change (0xd2)	The time of the device is changed either by BioStar software or direct user input.
Socket Connected (0xd3)	The TCP socket is connected between BioStar software and the device.
Socket Disconnected (0xd4)	The TCP socket is disconnected.
Server Socket Connected (0xd5)	The TCP socket is connected between the BioStar server and the device. This event will be written only if the server mode is on.
Server Socket Disconnected (0xd6)	The TCP socket between the BioStar server and the device is disconnected. This event will be written only if the server mode is on.
Link Connected (0xd7)	The Ethernet link is reconnected after a disconnection.
Link Disconnected (0xd8)	The Ethernet link is disconnected. The event implies there may be problems in the physical connection of Ethernet cable. You have to check if the cable connection is right and the hub or switch is functioning correctly.
IP Initializing (0xd9)	The IP configuration is changed with a static IP.
DHCP Initializing (0xda)	The IP configuration is changed to DHCP. The device starts trying to acquire an IP address from a DHCP server.
DHCP Success (0xdb)	The device has acquired an IP address successfully.
Zone Disconnected (0xdc)	The device cannot receive a response from the master device of a zone.

Saving and Loading Event Logs

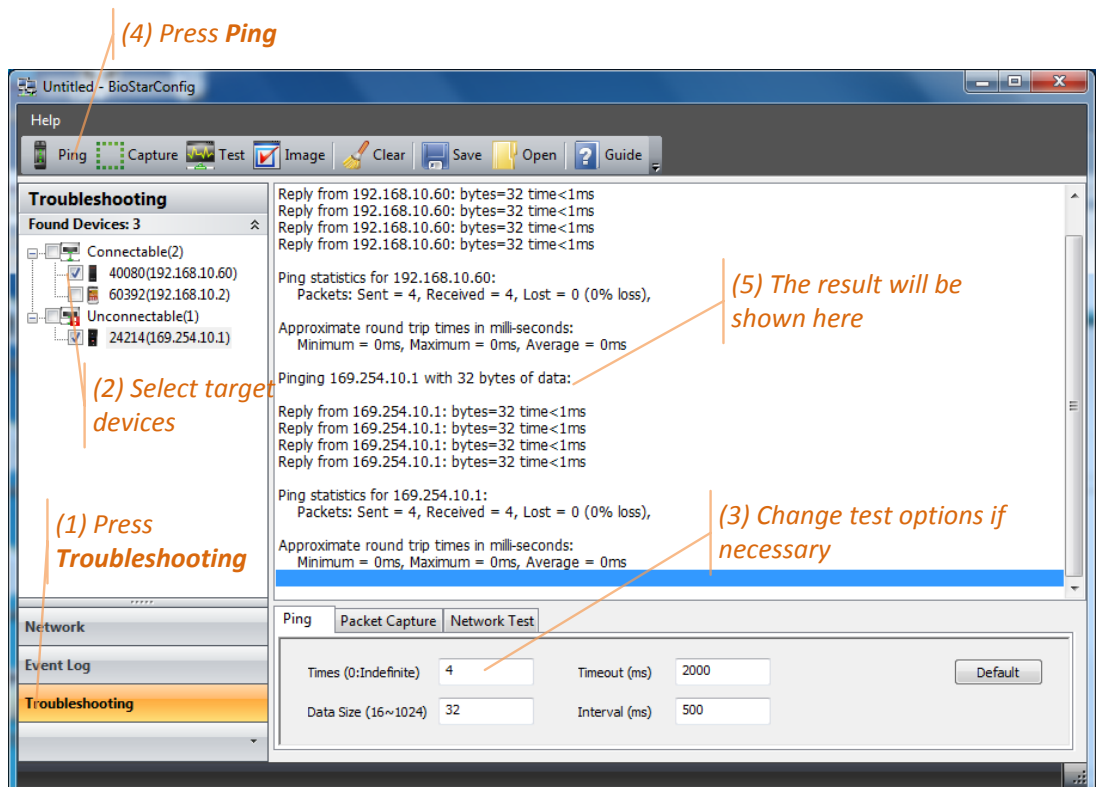
In some cases, Suprema's Technical Support may ask the event log for further analysis. You can save it by pressing **Save** button. You can also load a saved log file by **Open** button.

BioStar Config provides several tools to test the reliability of network connection. You can also capture network packets for further analysis and troubleshooting.

Ping Test

Ping is a very simple utility to check the reachability of a device. It can also be used for testing the reliability of network connections.

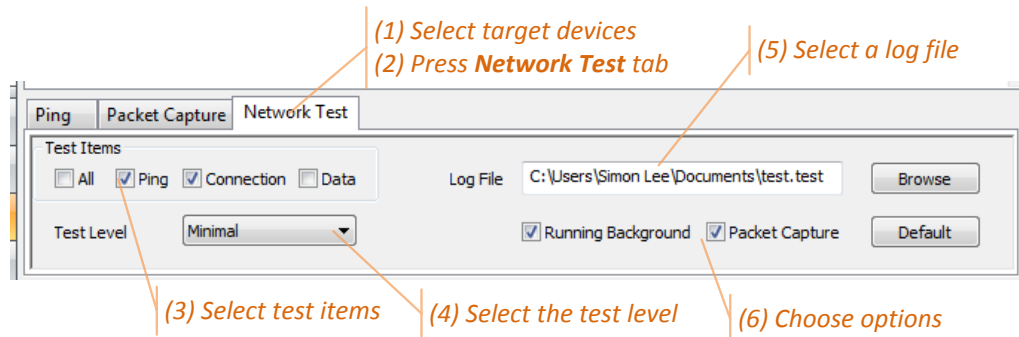
- 1 Press **Troubleshooting** in the task bar.
- 2 Select one or more devices in the device tree.
- 3 If you are to change the test options, press **Ping** tab in the right bottom of the **Troubleshooting** window. You can configure the number and size of test packets. You can also define the interval between test packets, and timeout value for waiting responses. To revert the options to their default values, press **Default**.
- 4 Press **Ping** in the menu bar. A status window will be popped up, and the result will be displayed in the log list window.
- 5 You can save the result into a text file by **Save**. To clear the log list window, press **Clear**.



Network Test

Even when the ping test shows no problem, there might be network-related issues such as intermittent disconnections. To test the reliability of network connection in real-life situation, you have to use **Network Test**.

- 1 Select one or more devices in the device tree.
- 2 Press **Network Test** tab in the right bottom of the **Troubleshooting** window.

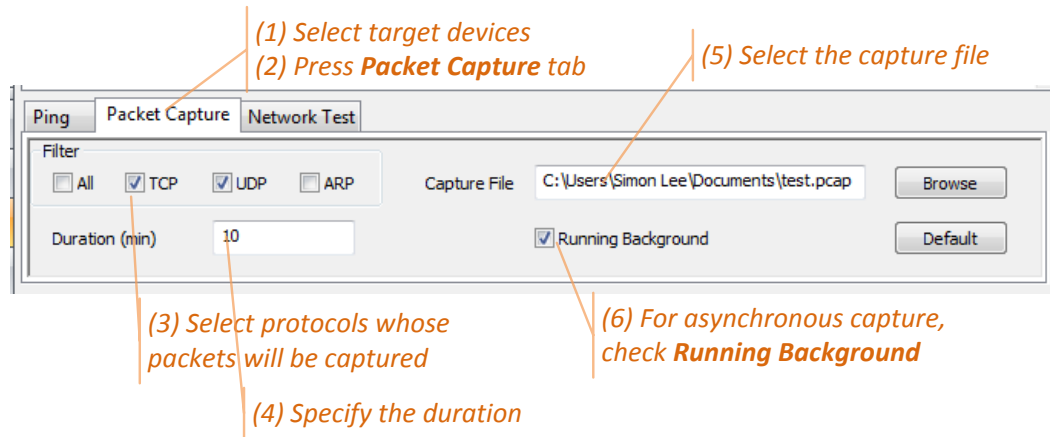


- 3 Select the test items. The available options are as follows;
 - Ping: Same as **Ping Test** described above.
 - Connection: Check if TCP connection to the device has no problem. The test repeats the following steps for the specified times – connect to the device, read log cache, and close the connection.
 - Data: Check if data can be transferred to and from the devices reliably. The test consists of the following procedures – connect to the device, read all the log records, read system configurations, write system configurations, and close the connection.
- 4 Choose a test level between **Minimal**, **Normal**, **Full** and **Extreme**. It specifies the number of retries, the number of test operations, and the interval time between two tries. Note that **Full** and **Extreme** tests can be very long. In most cases, **Minimal** or **Normal** level would be enough for testing.
- 5 Select a log file to which a test report will be written.
- 6 You can also specify two additional options.
 - **Running Background**: The test will be run as a background process. This option would be useful when executing multiple tests simultaneously.
 - **Packet Capture**: Capture the packets generated by the test. See the next section for details.
- 7 Press **Test** button in the menu bar.
- 8 The summary of the result will be displayed in the log list. And a more detailed report will be written to the specified log file.

Capturing Packets

In some cases, seeing the low-level packets could be very helpful to diagnose network problems. BioStar Config provides two ways to capture networking packets. First, you can capture packets using **Capture** menu directly.

- 1 Select one or more devices in the device tree. Only the packets related to these devices will be captured.
- 2 Press **Packet Capture** tab in the right bottom of the **Troubleshooting** window.



- 3 You can filter packets by network protocol. For example, if you are to capture only TCP packets, check **TCP** and uncheck the other options.
- 4 Specify the duration in minutes.
- 5 Specify the capture file to which packets will be written.
- 6 If you want to do other tasks during the capture, you can check **Running Background** option.
- 7 Press **Capture** button in the menu bar.

Or, you can use **Packet Capture** option in **Network Test**. In this case, all the packets generated by the test will be written to the LogFileName.pcap file. For example, if the log file name is networkTest.test, the captured packet will be written to networkTest.pcap file.

To view the captured packets, you need Wireshark, which can be downloaded from <http://www.wireshark.org/>. In the pull-down menu of Wireshark, select **File/Open**. And, select the capture file generated by BioStar Config.

Click **File/Open**. And, select the capture file generated by BioStar Config

The screenshot shows the Wireshark interface with a packet capture of ICMP Echo (ping) requests and replies. The packet list pane shows 16 packets, alternating between requests and replies. The packet details pane for the selected packet (No. 1) shows the following structure:

- Frame 1: 74 bytes on wire (592 bits), 74 bytes captured (592 bits)
- Ethernet II, Src: HewlettP_7a:bc:b4 (00:25:b3:7a:bc:b4), Dst: Suprema_10:82:5a (00:17:fc:10:82:5a)
- Internet Protocol, Src: 192.168.10.6 (192.168.10.6), Dst: 192.168.10.9 (192.168.10.9)
- Internet Control Message Protocol

The packet bytes pane shows the raw data in hexadecimal and ASCII:

```
0000 00 17 fc 10 82 5a 00 25 b3 7a bc b4 08 00 45 00 .....Z.% .z....E.
0010 00 3c 03 19 00 00 ff 01 00 00 c0 a8 0a 06 c0 a8 .<.....
0020 0a 09 08 00 f7 f8 00 01 00 06 00 00 00 00 00 ..
0030 00 00 00 00 00 00 00 00 00 00 00 00 00 00 ..
0040 00 00 00 00 00 00 00 00 00 ..
```

Network related problems can be categorized into several types according to their symptoms. This chapter provides common cases of each problem type, and shows how to use BioStar Config to troubleshoot them.

Problem Types

The first step of troubleshooting is to categorize the problem. This will help you identify the specific area of the problem and narrow down its possible causes.

Most network problems related to BioStar devices can be placed in one of the five categories listed below.

- Cannot ping the device.
- Cannot search the device.
- Cannot connect to the device.
- The connection to the device is lost.
- There are intermittent communication errors while transferring data.

Troubleshooting Cases

This section describes typical cases related to each problem type, and provides check lists to resolve them.

Cannot ping the device

The first step is to check whether you can reach the device on the TCP/IP network. The **ping** tool helps you verify IP-level connectivity. The **ping** command sends an ICMP Echo Request message to a destination device. Use **ping** whenever you want to verify that a host PC can send IP packets to a BioStar device.

When you cannot ping the device, you have to check the following cases.

Verify the IP configuration of the PC

Description

- Make sure that the PC's IP address is valid using **ipconfig** utility.

```
C:\#>ipconfig

Windows IP Configuration

Ethernet adapter LAN:

    Connection-specific DNS Suffix . : 
    IP Address . . . . . : 192.168.1.161
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.10
```


- If the IP address is configured properly, check if you can ping the gateway device.
- Check if you can ping a device in the same subnet of your PC.
- Check if you can ping a device outside of your subnet.

**Solution/
Workaround**

If any of the above tests fails, it means that there is something wrong in your network configuration. Consult your system administrator about this issue and reconfigure your IP settings accordingly.

Verify the dynamic IP address of the device

Description

With DHCP, the IP address of a device can be changed. It can be a problem especially when you do not use the server mode.

**Solution/
Workaround**

In BioStation, BioStation T2, D-Station, and X-Station, you can check the IP address of a device in its menu. To access the menu, you should be an administrator of the device, or you should know its administrator password.

Or, you can use the search function of BioStar Config. If the device is within the same network, you should be able to find it even if its IP address is changed.

To prevent problems caused by changed IP addresses, you can use the server mode. See [Appendix 1. Server/Direct Mode](#)

Check the link LED of the device

Description

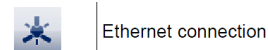
BioStar devices except BioLite Net have an indicator showing the link status of LAN.

- BioStation/BioStation T2/D-Station/X-Station: In the back panel of the device, you should be able to see two LEDs around the RJ45 connector. If both LEDs are turned off, it denotes the link is disconnected. The device also shows a link status icon in the main screen.

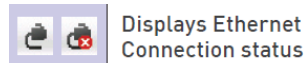
BioStation T2



D-Station



X-Station



- BioEntry Plus: There are red and green LEDs in the back panel. If the green LED is off, it means the link is broken.
- Xpass: There is a LED at the bottom of the device.

**Solution/
Workaround**

If the indicator shows the the link is broken, you have to check the following items;

- If the Ethernet cable is connected properly between the hub/switch and the device.
- If the corresponding hub/switch is working properly. You should be able to see the status LED of the port in the

Check if there is any IP conflict

Description If two or more devices have a same IP address, it may cause lots of network problems. If you cannot communicate with a device, whose IP address is valid, you should check if there is any other device with the same IP address.

Solution/ Workaround Checking IP conflict is not an easy task. If possible, you had better ask your network administrator for help. The following procedure will work only if you know the IP address of a device in the same network of the PC.

- 1 Run the ping test with **Packet Capture** option on as described in **Network Test**.
- 2 Inspect the captured pcap file in Wireshark. If there is any IP conflict, there should be another device which is trying to answer the ping command. If you cannot analyze the pcap file, you may send it to support@supremainc.com with detailed description of your problem.

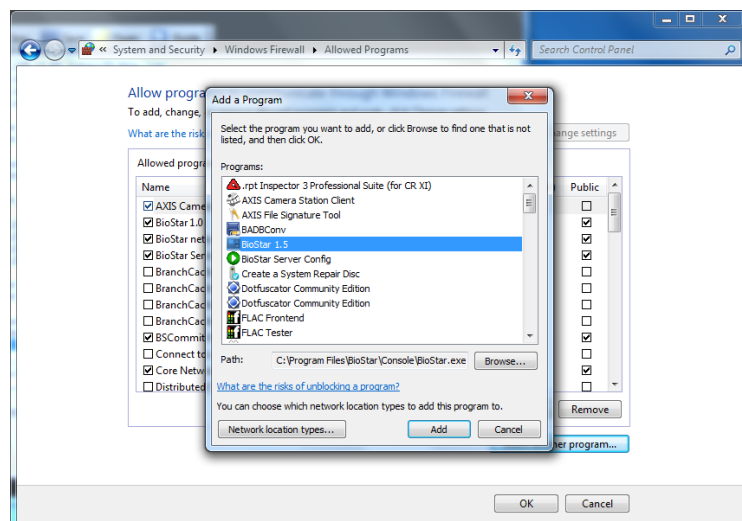
Cannot search the device

To add new devices to the BioStar server, you should be able to search them first. If you cannot find them in the BioStar client, check the following cases.

Check the firewall

Description For BioStar and BioStar Config to search devices, they should be in the exception list of any firewall software running on the PC.

Solution/ Workaround The procedures would vary according to the OS and the firewall software. For example, if you are using the firewall software of Windows 7, the procedure is as follows;



- 1 After clicking the **Start** button, select **Control Panel/System and Security/Windows Firewall**.
- 2 Click **Allow a program or feature through Windows Firewall**

in the left panel.

- 3 Press **Allow another program** and select BioStar or BioStar Config. Then, press **Add**.
-

Check if the searching method is correct

Description	In BioStar, there are two ways to search devices – UDP and TCP. UDP search is for finding devices in the same network of the PC. If the device resides in other network than the PC, you have to use TCP search.
Solution/ Workaround	<p>For UDP search to be successful, the following conditions should be met.</p> <ul style="list-style-type: none">• The device and the PC should be in the same subnet.• In some networks, UDP broadcasting might be blocked for security reasons. You have to check UDP broadcasting on the port of 51110 is permitted in the network. <p>For TCP search, the following conditions should be met.</p> <ul style="list-style-type: none">• You should know the exact IP address and the port number of the device. The default port number for BioStation, BioStation T2, X-Station, and D-Station is 1470. For BioEntry Plus, BioLite Net, and Xpass, it is 1471.

Try advanced search functions of BioStar Config

Description	The search function of the BioStar client would fail if there is any error in the IP configuration of the device. On the other hand, BioStar Config can find devices with some types of configuration errors.
Solution/ Workaround	You can use these features as described in Advanced Searching Functions . If you can find devices only with advanced search functions, it means that there are some problems in their IP configurations. You have to correct them as described in Correcting Invalid IP Configurations .

Using network reset SW

Description	In some cases, you may not find the device even with advanced search functions. As a last resort, you can use the network reset switch in the back panel of BioEntry Plus and Xpass.
Solution/ Workaround	<ol style="list-style-type: none">1 Turn on the reset switch of the device and reboot it. See the respective installation manual for details. The IP address of the device will be set to 192.168.0.1.2 Change your PC's IP address to 192.168.0.x.3 Restart BioStar Config and press Search button in the menu bar. Since your PC and the device are within the same subnet, BioStar Config should be able to find it now.4 Assign a new and valid IP address to the device.5 Turn off the reset switch of the device. Otherwise, the new

IP address will be lost after reset.

6 Revert your PC's IP address to its original value.

Cannot connect to the device

After adding the devices, you should be able to connect to the device. If BioStar client cannot connect to the device, or the device cannot connect to the BioStar server, you have to check the following cases.

Check if the device is set for server mode

Description There are two connection modes for BioStar devices – server and direct. You have to use a valid connection method depending on the mode. For example, if the device is set to server mode, the BioStar Client cannot connect to it directly. See [Appendix 1. Server/Direct Mode](#) for details.

Solution/Workaround With server mode, the device should connect to the BioStar server automatically. For the device to connect to the server, the following conditions should be met.

- In the network configuration of the device, the IP address and the port number of the server should be correct. If your PC and the device are in the same network, you should be able to ping the BioStar server from your PC.
- The BioStar server should be in the exception list of any firewall.

Check the status of the BioStar server

Description In rare cases, the BioStar server might not be able to process the connection requests from devices. With server mode, the BioStar server will try to read the log records of a newly connected device, which were written during the disconnection. So, if there are lots of log records, it might take long time to process a connection request from a device.

Solution/Workaround You can check the status of the BioStar server as follows.

- In **Computer Management/Services and Applications/Services**, the status of **BioStar Server** should be **Started**.
- In **Processes** tab of **Windows Task Manager**, there should be **BSServer.exe**.
- If the server is running but some devices have difficulty in connecting to the server, you can capture the packet for further analysis. Select the problematic device in BioStar Config and capture the packets as described in [Capturing Packets](#). These packets would be helpful to speed up the troubleshooting process.

Check if another application is already connected to the device

Description	For BioEntry Plus, BioLite Net, and Xpass, only one software can connect to a device at a time. For BioStation, BioStation T2, X-Station, and D-Station, you can configure the number of maximum connection in the network setup menu. The default value is 1.
Solution/ Workaround	<p>If some devices are already connected to the BioStar server, they are displayed as unconnectable in BioStar Config. If you still want BioStar Config to connect to the devices, you have to stop the BioStar server temporarily.</p> <p>If the connection between the device and BioStar software is aborted abnormally, it might make the device unconnectable temporarily. However, if this is the case, the device should reset the dead connection after the specified timeout period. The timeout will vary between 1 and 10 minutes according to the device type.</p>

Connection lost

Another common problem is lost connection, which may be caused by physical disconnection, dynamic IP change, and other communication errors.

Refresh the device

Description	If a device is disconnected in direct mode, its connection is not recovered automatically. You have to reconnect to the device manually.
Solution/ Workaround	<p>In the BioStar client, the disconnected devices are displayed with an error icon. You can try reconnection in two ways.</p> <ul style="list-style-type: none"> • Select the top Device and click the right mouse button. In the popup menu, select Refresh. The BioStar will try to reconnect to all disconnected devices. • Select a disconnected device and click the right mouse button. Select Device Reconnect.

Check if the IP address is changed

Description	As described in Assigning an IP Address , the IP address assigned by a DHCP server can be changed. With server mode, the device will reconnect to the server automatically. However, with direct mode, the BioStar client cannot know the change, which may result in permanent disconnection.
Solution/ Workaround	<p>If the following conditions are met, it means that the IP address of the device is changed.</p> <ul style="list-style-type: none"> • The device is in direct mode. • You cannot connect to the device in the BioStar client. • With BioStar Config, you can search the device, but with a different IP address. <p>In that case, you have to re-add the device to BioStar as follows.</p>

-
- 1 In the **Device** menu of the BioStar client, select the device and click the right mouse button. Select **Remove Device**.
 - 2 Select **Add Device** in the **Task** panel and do the LAN search. After completing the search, add the device again to BioStar.

There are two ways to prevent IP changes in direct mode.

- Assign a static IP address.
 - Configure the DHCP server so that it assigns a fixed IP address to the specific MAC address.
-

Check the networking log records

Description The disconnection may occur by temporary network problems in normal situation. However, if the disconnection persists even after the network problems are solved, you have to check if there are any other causes.

**Solution/
Workaround** A BioStar device writes log records when it loses its connection. For the meaning of networking log event, see [Network Events](#).
You have to check if **Socket Disconnected** or **Server Socket Disconnected** events are generated by genuine network problems. For example, if a hub or switch is malfunctioning, all the devices connected to it will show the same disconnection events at the same time.
However, if there are many disconnection events which cannot be explained by any physical problems, further analysis would be necessary. In this case, please contact support@supremainc.com with a detailed description of your problem. The event log file and captured packets would be very helpful for troubleshooting.

Intermittent communication errors

Intermittent communication errors are most common, but not easy to troubleshoot. In many cases, these errors are only temporary and hard to reproduce. To narrow down the cause of the problem, check the following cases.

Do the Network Test

Description There can be random errors caused by temporary network problems. For example, if the network is overloaded temporarily, data communication will not be reliable for that period. These kinds of errors will disappear as the network returns to normal.

However, if communication errors occur too frequently, or only the BioStar devices show the problems, you have to do further tests for troubleshooting.

**Solution/
Workaround** The **Network Test** of BioStar Config is a useful tool for detecting any reliability problems in a certain network environment. It will do stress test for the following

operations.

- Connection and disconnection
- Reading small size of log data
- Reading large size of log data
- Reading/writing large size of configuration data

By making extreme conditions, these tests could disclose networking issues, which are hard to reproduce in normal operations.

Capture packets

Description

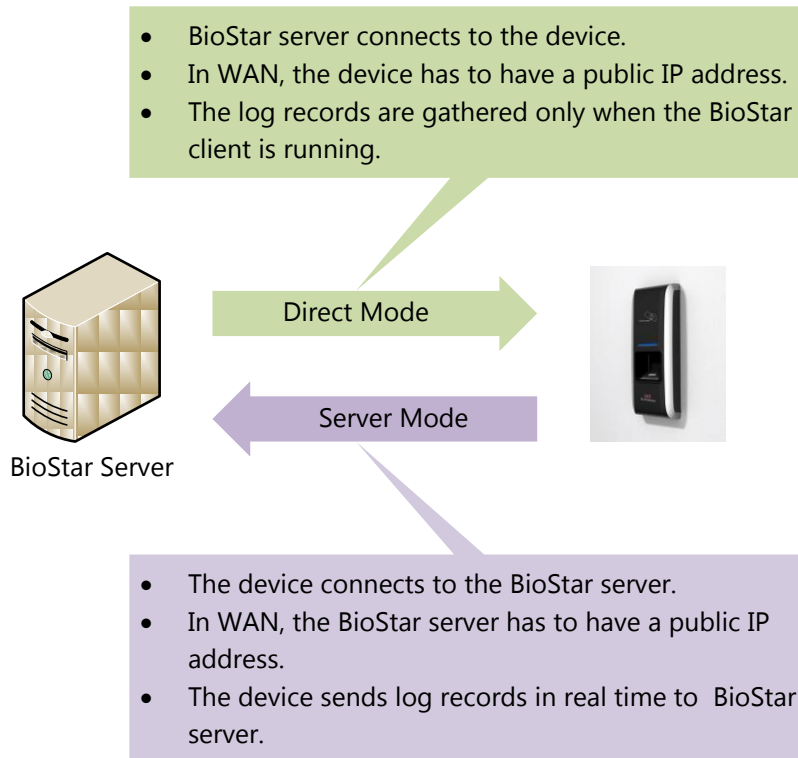
The **Network Test** is useful for revealing reliability problems. However, reproducing the problem is just the first step for resolving it. To narrow down the causes of the problem, we need more information.

Solution/ Workaround

To get more concrete information, you can enable the **Packet Capture** option of the **Network Test** in BioStar Config. See [Capturing Packets](#) for details.

Even though you cannot decipher the low level packets by yourselves, it would be valuable for the Suprema support team to tackle the issue.

The connection between the BioStar server and devices has two modes – direct and server. To troubleshoot network issues, especially the disconnection problem, you have to understand the differences between these two modes.



	Direct Mode	Server Mode
Connection Method	The BioStar connects to the device.	The device connects to the BioStar server.
Log Records	The BioStar client should gather log records while it is running.	The device sends log records to the BioStar server automatically.
Device Configuration	Uncheck 'Use Server' option.	Check 'Use Server.' Configure the IP address and port number of the server.
Search Method	You have to add devices manually after searching them.	The device will be listed under the BioStar server in the device tree automatically. You cannot add devices manually even if you find them in searching.

Handling of Disconnection	You have to reconnect to the devices manually in the BioStar.	The device will reconnect to the server automatically after disconnection.
When to Use	No need of real-time log gathering. No PC for running the server all the time.	Log records should be gathered in real time. In WAN, only the server PC may have a public IP address.
