ProteinChip® SELDI System: Reader Guide

Personal Edition and
Enterprise Editon

BIO-RAD

Bio-Rad Laboratories, Inc.
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ProteinChip SELDI System: Reader Guide

Introduction

The ProteinChip SELDI System, Personal Edition and Enterprise Edition, is designed to read Bio-Rad's proprietary ProteinChip arrays in conjunction with Bio-Rad software. Sample preparation, protocol development, and analysis are outside the scope of this guide. For information on ProteinChip arrays, sample preparation, and protocols, please see the *ProteinChip SELDI System Applications Guide* (bulletin 10008221), volumes 1–2. For data analysis, see the ProteinChip Data Manager Software Operation Manual.

Specifications[1]

The ProteinChip SELDI reader is a linear laser desorption/ionization time-of-flight mass spectrometer.

ProteinChip SELDI Reader

Designed for benchtop operation

Dimensions: 115 cm (H) x 59 cm (W) x 79 cm (D)

Mass: 105 kg

Mass Analysis Range

From less than 0.02 kD to greater than 150 kD

Sensitivity

Lower limit of detection less than 10 fmol 150 kD protein per spot

1. All specifications are for reference only and are subject to change without notice as part of Bio-Rad's policy of continuous improvement.

Mass Resolving Power

Peptide

Better than 1000 for [Arg^8]-vasopressin at 1084 Da, standard operating voltage

Mass Accuracy

Inherent

Measured mass will be within 0.5% of true mass with 95% confidence (0.25% CV)

External calibration

Measured mass will be within 0.1% of true mass with 95% confidence (0.05% CV)

Internal calibration

Measured mass will be within 0.01% of true mass with 95% confidence (0.005% CV)

Laser

Pulsed nitrogen laser (337 nm), 4 ns pulse width

Sample Handling

Personal

Runs one 8-spot array within 20 minutes using 250 transients per spot

Enterprise

Runs a cassette of up to twelve 8-spot ProteinChip arrays within 2 hours using 250 transients per spot

Vacuum System

Operating pressure < 2.7×10^{-4} Pa

Gauges: active inverted magnetron (high vacuum) and active Pirani (low vacuum) turbomolecular pump

Personal Edition: 70 L/s high compression with two-stage rotary-vane backing pump

Enterprise Edition: 250 L/s high compression with two-stage rotary-vane backing pump

Control System

Network compatible PC with Microsoft Windows 2000 or XP for reader operation and data storage.

Equipment Ratings

Electrical Requirements

For safety, the ProteinChip SELDI system must be connected with a certified power cord rated to at least 10 A to a grounded outlet. Power supply voltage fluctuations must not exceed ±10% of the nominal voltage.

Supply voltage, current ratings, and fuse ratings

Fig. 1: Supply voltages, current ratings, and fuse ratings for the ProteinChip SELDI system Personal Edition (left) and Enterprise Edition (right).

Identification and Certification Label

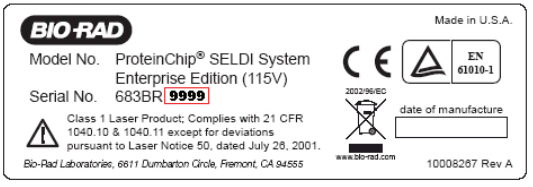


Fig. 2: ProteinChip SELDI system identification and certification label.

Environmental Conditions During Operation

Intended for indoor use

Temperature 18°C to 27°C

20–80% relative humidity, noncondensing

Mains supply voltage fluctuations not to exceed ±10% of the nominal voltage

Environmental Conditions During Storage or Transport

Temperature -20°C to 60°C (-4°F to 140°F)

Maximum relative humidity 93% non-condensing at 35°C

Maximum operational altitude 2,000 meters

Safety Precautions

Safety symbols are present on the user-accessible parts of the system, on the top rear of the tower. These labels are shown in Fig. 4. Internal symbols used are:

ISO 3864, No. B.3.6 Caution, risk of electric shock

ISO 3864, No. B.3.1 Caution (refer to accompanying documents)

The indicator light, which shows when high-voltage power and laser power are enabled, is labeled with the "caution" (refer to accompanying documents) symbol (symbol 14, Table 1 of EN61010-1) and a label worded "CAUTION: high-voltage power supplies and laser are enabled when yellow LED is illuminated". Documentation needs to be consulted in all cases where symbol 14, Table 1 of EN61010-1 is used in order to find out the nature of the potential hazard and any actions which have to be taken.

Fig. 3: Safety symbols associated with the indicator LED.

There is a risk of electric shock from the high-voltage cables and connections. Caution is required when working with the components that require periodic maintenance. In all cases, the instrument should be shut down and power removed from the instrument before performing **any** service, including periodic maintenance.

All high-voltage connections are labeled with the "Caution, risk of electric shock" symbol (symbol 12, table 1 of EN 61010-1) and the words "Danger" and "High Voltage."

Fig. 4: Safety symbols indicating high voltage inside the ProteinChip SELDI system cabinet. These labels are located on the exterior of the instrument, near the screws retaining the side covers.

Warning: If the equipment is used in a manner other than specified, the protection provided by the equipment may be impaired. No contact with hazardous parts or emissions is possible if the instrument panels are kept in place. It is the user's responsibility to ensure that untrained persons do not access the interior. Serious injury or death may result from contact with components inside the cabinet under single-fault conditions.

The enclosure is an integral part of the safety of this unit. In all cases, the instrument should be shut down and power removed from the instrument before removing ***any*** external cover.

Only personnel aware of the hazards of high voltage and Class 3B laser radiation should service the reader. The following label should be present near the safety interlock defeat port and near the safety interlock switches associated with panels protecting the user from laser radiation:

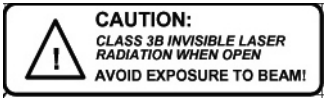


Fig. 5: Laser safety warning label inside the system cabinet. This label is visible from the front when the side panels are removed.

Laser Radiation

Warning: The system contains an ultraviolet (UV)-emitting pulsed nitrogen laser (337 nm, 250 µJ maximum energy/4 ns pulse, 20 Hz maximum pulse rate). The mass analyzer is a CLASS 1 LASER PRODUCT according to EN 60825: 1993. This means it is safe under reasonably foreseeable conditions of operation. However, normal operation does not include maintenance or service. When the enclosure panels and any of the optics covers inside the instrument are removed, human access to Class 3B laser radiation becomes possible. Laser safety glasses must be worn when servicing the instrument. The

glasses must have an optical density of >5 at 337 nm. Care should be taken to avoid specular reflection of the beam. Laser energy levels up to 250 µJ at 337 nm could be accessible in the interior if the inner cover is removed.

High Voltage

Warning: The unit contains high-voltage power supplies. While the components are fully insulated under normal conditions, electrostatic charge can accumulate on wires and feedthroughs carrying high voltage as well as nearby components. Contact with these components should be avoided when high voltage may be present.

Radio Frequency Energy

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the Federal Communications Commission (FCC) rules and regulations. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his expense.

Set Up Requirements

The ProteinChip SELDI reader (Fig. 6) is approximately 115 cm high, 59 cm wide, and 79 cm deep. The reader will fit on a normal height laboratory bench. The reader will be delivered in a packing case and weighs about 105 kg. The packing case must be unloaded and moved with a forklift or pallet jack.

Packing Case

143 cm (H) x 84 cm (W) x 89 cm (D)

ProteinChip SELDI Reader

115 cm (H) x 59 cm (W) x 79 cm (D)
Weight 105 Kg
4 x 120 V in US
2 x 13 A in EU
2 m bench space

Ventilation

The ProteinChip SELDI reader requires 3.0 cm of space at the rear and 3.0 cm above the vents on the top of the main enclosure and at the top of the tower for adequate ventilation. The air on all sides of the enclosure must meet the environmental conditions specified above during operation. The region around the system should be kept free of dust.

Mounting

The ProteinChip SELDI reader has no special mounting requirements. If your location is subject to earthquakes, adequate restraints should be used to prevent the reader from moving.

Network Connection

A network connection can be made to the computer according to the computer manufacturers' instructions.

Installing the ProteinChip SELDI Reader

Setup Time

It takes approximately one day to get the ProteinChip SELDI reader ready for operation, including unpacking and moving the reader to the laboratory, connecting it to the power supply, connecting a computer to the reader, and allowing the unit to reach operating pressure. Installation is generally performed by a Bio-Rad engineer.

Pre-Installation Reader Inspection

1. Position the reader's shipping case on a level surface.
2. Release the straps at the bottom of the case, then remove the upper part of the case. The reader is secured to the bottom part of case with four bolts which can now be released.

Fig. 6: The ProteinChip SELDI reader, Personal Edition, on its shipping pallet.

3. Inspect the reader for physical damage. If the reader appears to be damaged, contact Bio-Rad customer service.
4. Check the voltage label on the rear of instrument to verify that the operating voltage is correct for your line voltage.

   If the selected voltage is incorrect, change it by removing and reinserting the fuse assembly with the arrows aligned to the proper operating voltage.

Optional Accessories

Uninterrupted power supply

An uninterrupted power supply (UPS) is recommended to ensure continuous operation and to guard against data loss.

We recommend the following UPS for North American systems:

Model: S1000XA-1 from ONEAC (available from Bio-Rad)

Description: Sinergy 1KVA UPS, 120 V AC input/output, 60 Hz line frequency. 5-minute backup time.

Ordering: **Uninterruptible Power Supply, 120 V (catalog # A30-10010)**
One kVA UPS provides clean and uninterruptible power for the US and countries utilizing 120 V AC, 60 Hz power. This unit will provide 5–8 minutes of backup time in the event of a utility power loss.

We recommend the following UPS for countries utilizing 230 V AC, 50 Hz power:

Model: S1000XA-2 from ONEAC (available from Bio-Rad)

Description: Sinergy 21KVA UPS, 230 V AC input/output, 50 Hz line frequency. 5-minute backup time.

Ordering: **Uninterruptible Power Supply, 230 V (catalog # A30-10020)**
One kVA UPS provides clean and uninterruptible power for countries utilizing 230 V AC, 50 Hz power. This unit will provide 5–8 minutes of backup time in the event of a power loss.

Setting Up the ProteinChip SELDI System

Setting Up the ProteinChip SELDI System

If you are planning to put the reader onto your network please refer to Appendix A

Required materials

- ProteinChip SELDI reader
- Workstation computer and associated peripherals
- Crossover cable (included)

Connect the reader and the workstation

1. After the ProteinChip SELDI system reader has been powered up, allow up to 2 hours for the vacuum pump to reach optimum pressure.
2. Plug the crossover cable into the network slots on the reader, and into the computer. The crossover cable is clearly labeled (on the cable itself).
3. Power up the computer.

Launch the software

1. Locate the ProteinChip data manager client software shortcut on the desktop and double-click it to launch the client (please refer to the ProteinChip Data Manager Installation and Setup guide Bulletin# 10008270 for software installation instructions).

1.

2. In the **Login** dialog box (Fig. 7), enter *admin* for the **User name**, and *admin* for the **Password**. Leave the **Server** set to *Local host*.

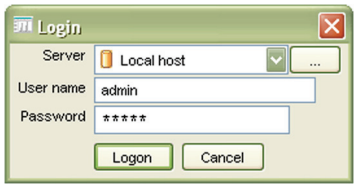


Fig. 7: The **Login** dialog box.

3. Log in to the ProteinChip data manager client software by pressing the **Logon** button.

Create the instrument profile using ProteinChip data manager client software

1. Click the **Instruments** node in the **Explorer** pane.

New Instrument button

2. Click the **New Instrument** button on the toolbar or select **File** | **New** | **Instrument**. The **New Instrumen**t dialog box will open.

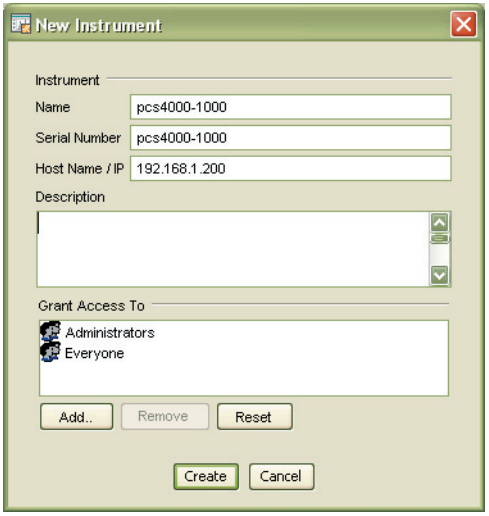


Fig. 8: The **New Instrument** dialog box.

3. Enter a name for the reader into the **Name** field. This can be any name of your choosing. This is a required field.
4. Enter the reader's **Serial Number**. This is a required field. See Fig. 8, below, for the location of the serial number.

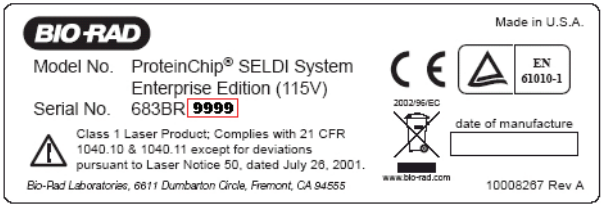


Fig. 9: The serial number plate.

5. Enter the IP address of the instrument in the **Host Name/IP** field. The IP address is preconfigured to be "192.168.1.200". This is a required field.
6. Click the **Create** button to complete the instrument profile.

Connect to the reader using ProteinChip data manager client software

1. After the reader profile has been created, connect to the reader by highlighting the reader name in the **Explorer** pane.
2. Once the connection is made, the **Home** tab will be displayed. You may receive a "Server mismatch" error message on connecting. You must now configure the reader to communicate with the ProteinChip data manager server software.

Set up communication between the reader and ProteinChip data manager server software

In order for the reader to save data to the server, you must specify the name of the computer running the ProteinChip data manager server software.

1. On the ProteinChip data manager client computer, open the **Control Panel**, then click **System**. In the **System Properties** dialog box, click the **Computer Name** tab.
2. To determine the computer name, locate the field called **Full computer name** and copy down the text up to the first decimal point (Fig. 10). Once recorded, you can click **Cancel** to close the dialog box.

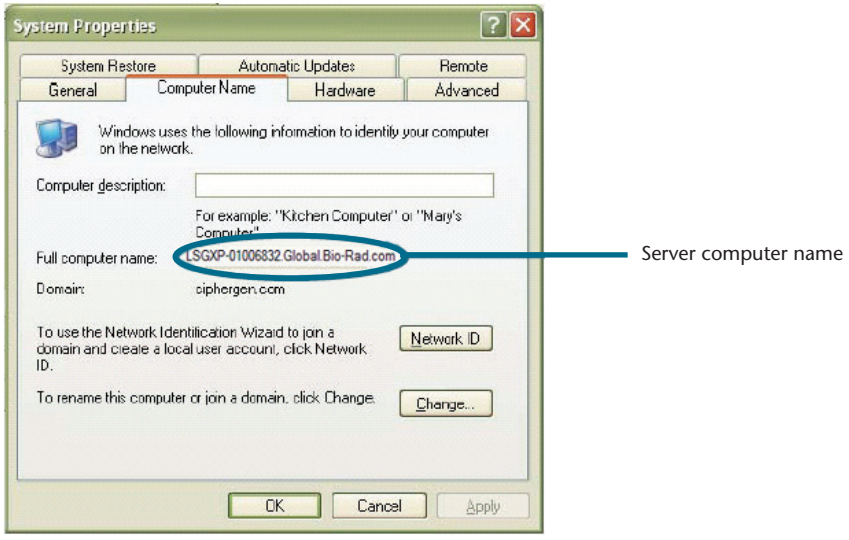


Fig. 10: The **System Properties** dialog box.

3. In ProteinChip data manager client software, connect to the reader by clicking its name in the **Explorer** pane.
4. Once connected, select **Instrument** | **Instrument Options**. Allow a few moments for the dialog box to retrieve the current settings from the ProteinChip SELDI reader.

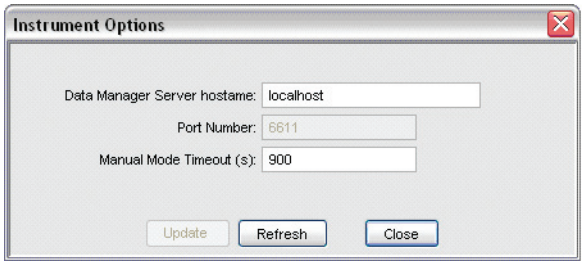


Fig. 11: The **Instrument Options** dialog box.

5. Enter the computer name recorded in step 2 into the **ProteinChip Data Manager Name** field and click the **Update** button to update the instrument. Click the **Close** button to exit.
6. You are now ready to begin using the ProteinChip SELDI system. Please refer to the ProteinChip data manager software manual for details.

Operating the ProteinChip SELDI Reader

Except for the power switch (located at the back of the reader), there are no operating controls on the ProteinChip SELDI reader. For the Personal Edition, the only movable part is the door, which is opened to insert or remove an array. For the Enterprise Edition, the only movable parts are the cassette dust cover lids, which are opened to insert or remove cassettes. The reader is controlled through the software. See the ProteinChip data manager software manual for more information. Please note that if the reader is used in a manner not specified by Bio-Rad, the safety protection system provided by the reader may be impaired.

CAUTION

Use of controls and adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Multicassette Autoloader (Enterprise Edition)

The ProteinChip SELDI system Enterprise Edition comes with a multicassette autoloader. It contains cassette loader and unloader assemblies designed to allow the automated processing of multiple cassettes from a stack. The purpose of this feature is to allow unattended operation of the reader for significant periods of time. The loader processes the cassettes sequentially, removing each cassette from an input stack, cycling the designated arrays in the cassette through the load lock and source chamber, then transferring the processed cassette to the output unloader before returning to collect the next cassette. This system is designed for continuous unattended processing of up to 14 cassettes in one run. A maximum of 14 cassettes can be loaded into the stacker at one time. The cassette lids must be closed in order for the reader to run.

Overview of Operation

The following instructions are intended to be a brief guide only. For more information on data acquisition and analysis, please consult the ProteinChip data manager software manual.

Acquiring control of the reader

The status of the sensors is displayed in the **Home** tab of the software interface for the reader (refer to Fig. 12). The sensors should have the following status before beginning operation:

Enterprise Edition

- Vacuum state — operating
- High voltage — off
- Cassette — present
- Loader cover — closed
- Unloader cover — closed
- High vacuum — $<2.7 \times 10^{-6}$ Pa.

Control of the reader is obtained by clicking the **Start** icon.

Personal Edition

- High voltage — off
- Door — closed
- Lock — locked

Control of the reader is obtained by clicking the **Start** icon.

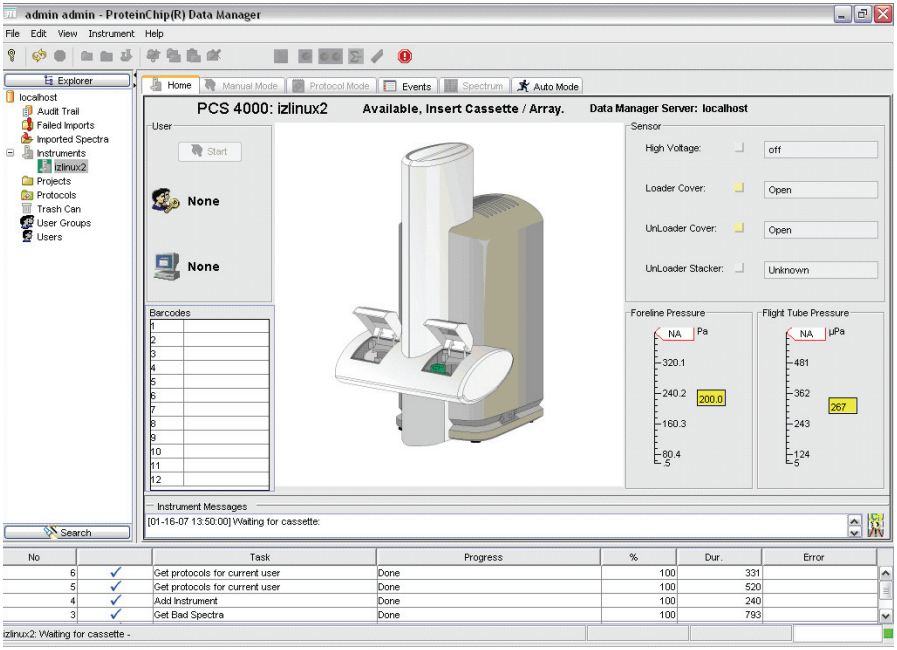


Fig. 12: Sensor status before beginning operation.

Manual Mode

Manual Mode allows you to manually set data acquisition parameters for individual pixels on spots, to optimize reader settings, or as a quick test. All data are collected using the **Manual Mode** tab's data collection settings.

 Single laser shots can be fired using the **Fire Once** button.

 Multiple laser shots can be fired using the **Fire Continuously** button. Click the button a second time to stop firing.

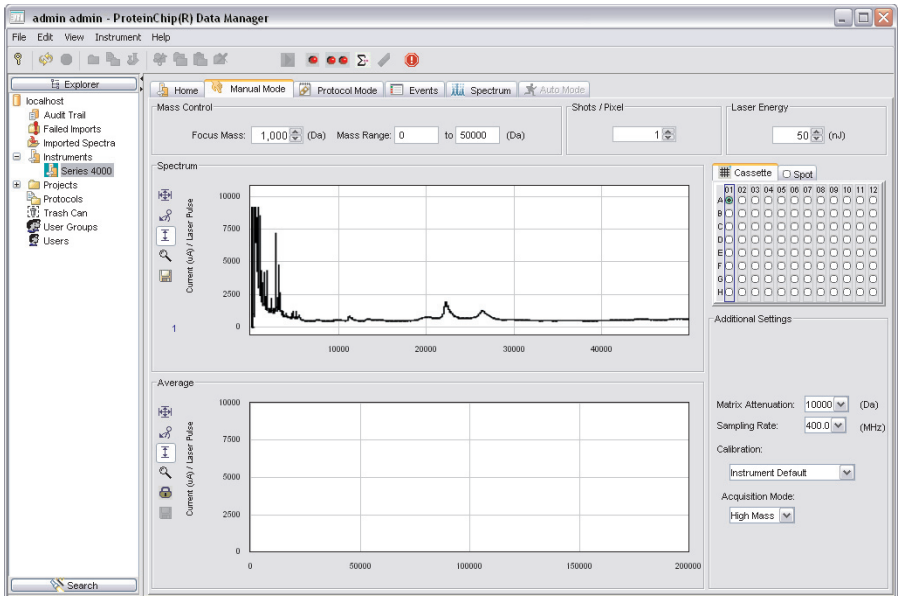


Fig. 13: Collecting data in **Manual Mode** (Enterprise Edition).

Protocol Mode

Protocol Mode allows you to apply and run existing protocols on arrays or spots. All data will be collected using the currently selected protocol (displayed at the top of the **Protocol Mode** tab). The protocol settings can be adjusted by clicking the **Protocol Settings** button beside the **Cassette**/**Spot** map (the **Spot**/**Pixel Selector**, if using the Personal Edition). The **Partitions** settings indicate which parts of each spot will be used. **Protocol Mode** can also be used for creating protocols from templates, and for modifying existing protocols.

Click the **Run** button to begin data collection.

Click the **Stop Run** button to halt data acquisition.

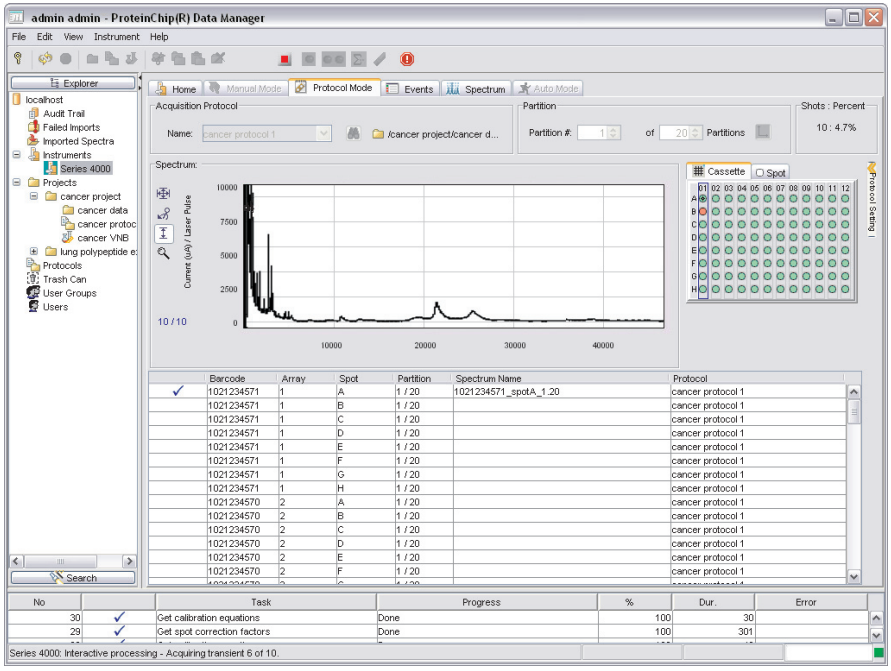


Fig. 14: Collecting data in **Protocol Mode** (Enterprise Edition).

Auto Mode (Enterprise Edition only)

Auto Mode allows you to run cassettes automatically, as long as the barcodes on the arrays match those in a Virtual Notebook's bioprocessor maps (please refer to the ProteinChip data manager software manual for more information on Virtual Notebooks). You can run multiple cassettes automatically by assigning sample properties and protocols to arrays using the ProteinChip data manager software Virtual Notebook. First, enter the barcodes into a Virtual Notebook bioprocessor map, then apply sample properties and protocols as desired to the arrays. Next, place the cassette(s) into the reader. The software will automatically associate the arrays with the appropriate protocols and begin acquisition. The **Auto Mode** tab allows you to view the status of the current automatic run, without having to take control of the reader.

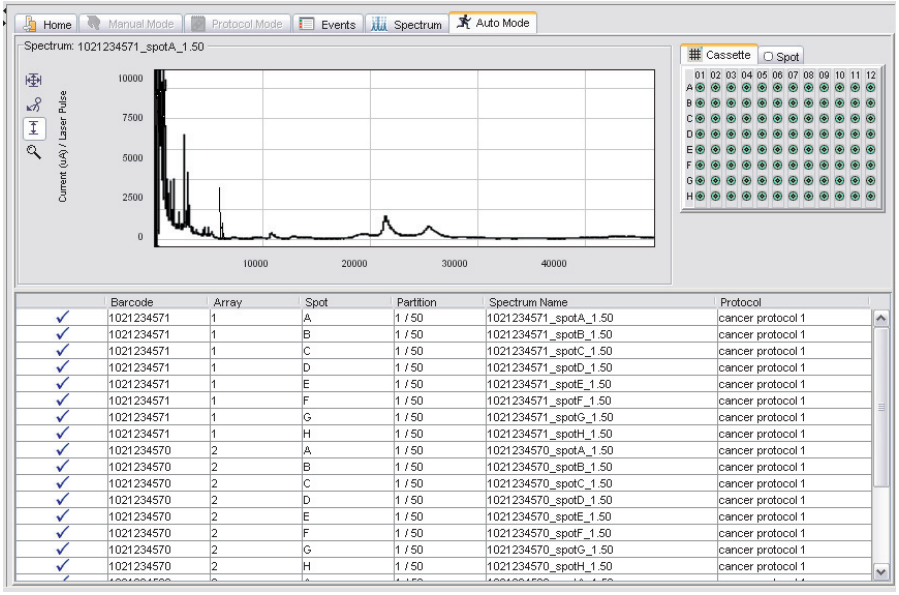


Fig. 15: Collecting data in **Auto Mode** (Enterprise Edition).

Shutting Down the ProteinChip SELDI Reader

To shut down the reader and turn off the power, first stop data collection, if necessary, by clicking on the **Stop Run** ( ) button on the toolbar, then select **Instrument Shutdown** from the **Instrument** menu. Wait for the System Active light on the lower right side of the reader to go out. It is then safe to shut off power to the reader.

Basic Maintenance

Load Lock Door Cleaning for Enterprise Edition Instruments

NOTE

Training on the following maintenance procedures will be provided during basic training course. For technical service, call your local Bio-Rad office, or in the US, call 1-800-4-BIORAD (1-800-424-6723).

1. Shut down the reader by choosing **Instrument Shutdown** from the **Instrument** menu.

2. Wait for the System Active light on the lower right side of the reader to go out, then turn off the reader power.
3. Remove the front cover from the reader. You will need to remove the two screws at the top rear corners of the front cover and carefully disconnect the “stack full” sensor cable.
4. Completely loosen the captive screws on either side of the rear cassette guide (Fig. 16).

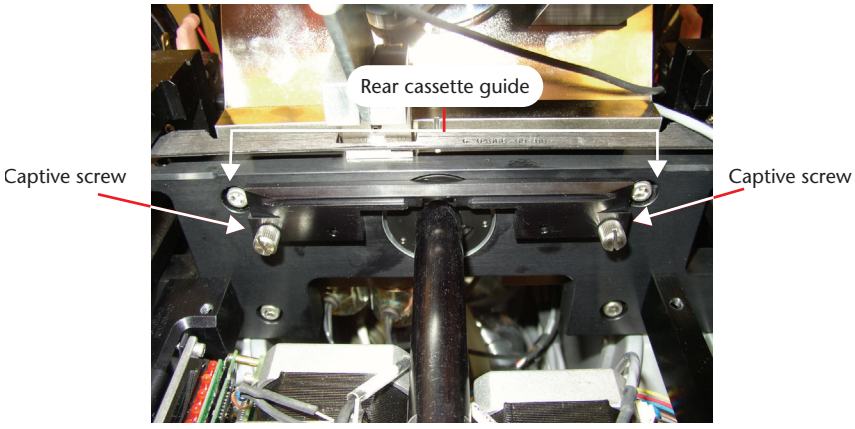


Fig. 16: The rear cassette guide, installed.

5. Remove the rear cassette guide from the autoloader back plate (Fig. 17).

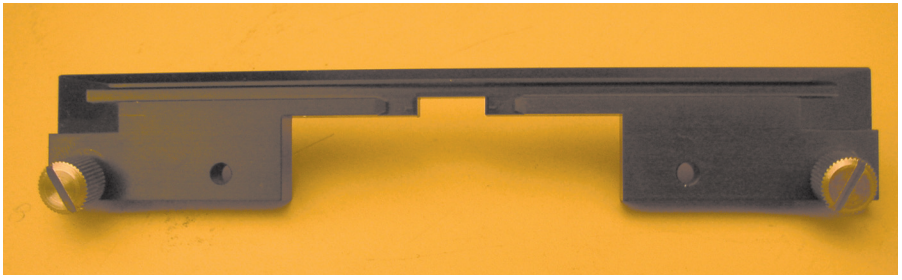


Fig. 17: The rear cassette guide, removed.

6. Remove the two thumbscrews on either side of the pawl drive front plate (Fig. 18).

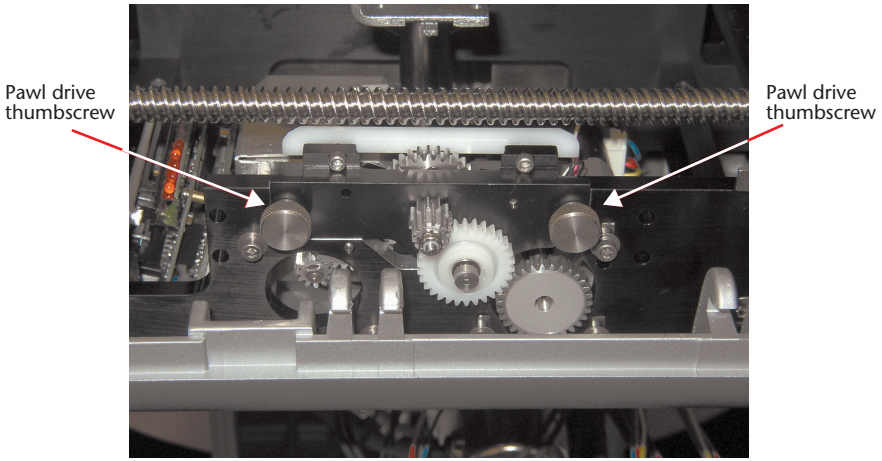


Fig. 18: Pawl drive front.

7. Gently pull the pawl drive assembly back and up to clear it from the load lock door. Be careful not to damage the wires connected to the pawl drive assembly (Fig. 19).

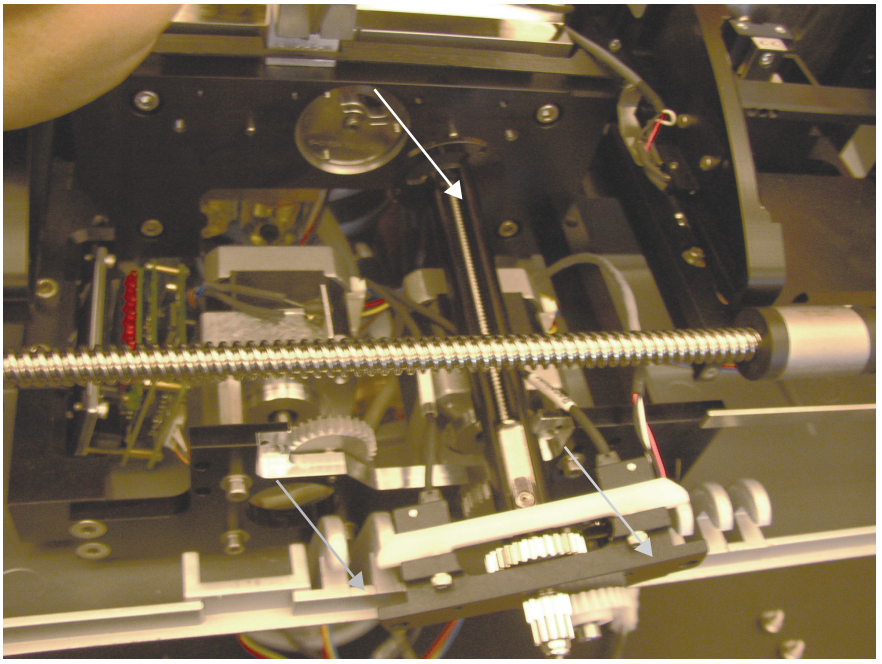
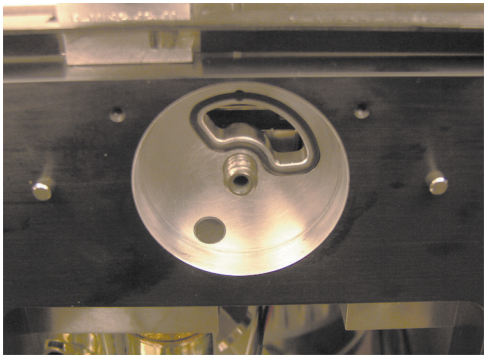


Fig. 19: Pawl drive assembly, pulled back from front plate.

8. Using the pins on the front, unscrew the load lock door from its post (counterclockwise).
9. Clean the load lock O-ring and the flat side of the door with a clean lab wipe and alcohol (Fig. 20).



Load lock seal

Load lock door, seal side

Fig. 20: Load lock seal, and load lock seal door.

10. Replace the load lock door by screwing it clockwise back on to the post.
11. Tighten the door until it seals against the O-ring.
12. Unscrew the load lock door about 1/2 turn until it is in the open position (cutout in door should match opening in load lock).
13. Carefully replace the pawl drive assembly, lining up the posts on the load lock door with the pawl drive plate. Take care not to catch the load lock door home sensor wires between the pawl drive plate and the autoloader mounting plate (Fig. 21).

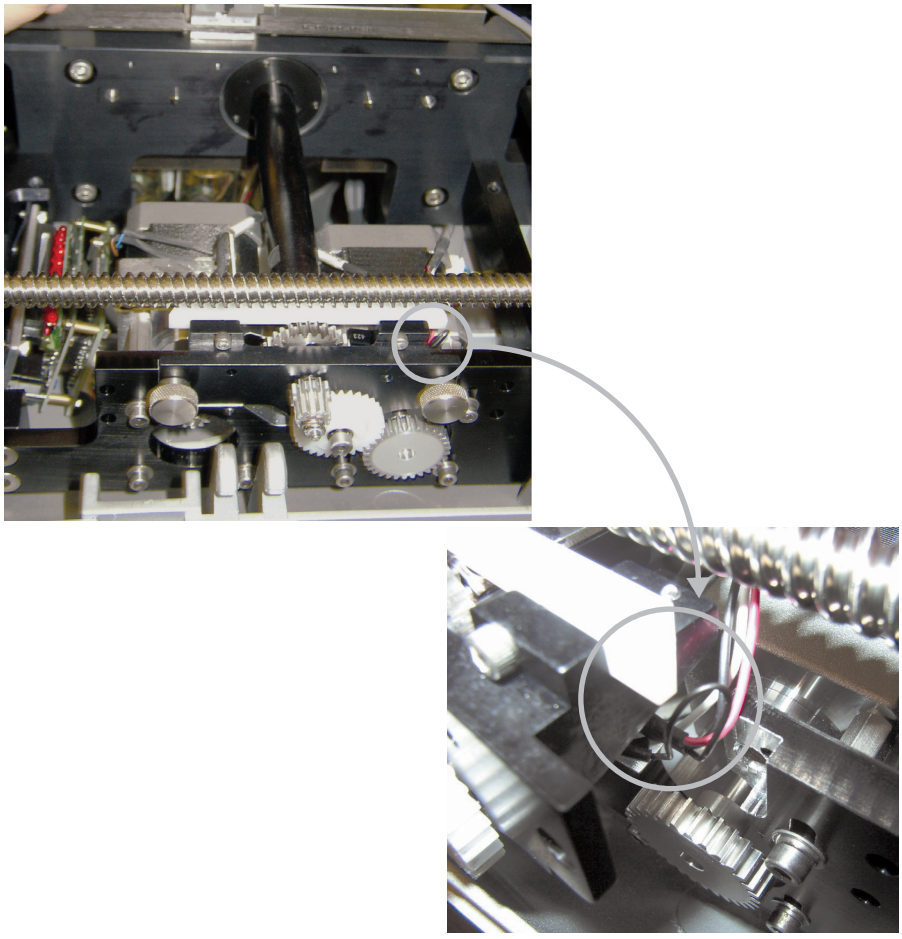


Fig. 21: Load lock door sensor wires.

14. Replace the thumb screws on the front of the pawl drive.
15. Manually open and close the load lock door to verify proper operation and sealing. Leave the load lock door in the closed position.
16. Replace the rear cassette guide.
17. Reconnect the “stack full” sensor cable, then replace the reader front cover.
18. Turn on the reader power.
19. Verify that the reader initializes correctly.
20. Insert a cassette and insert an array to verify proper load lock door operation.

Load Lock Door Cleaning for Personal Edition Readers

1. Open the sample exchange door on the front of the reader.
2. Using the pins on the front, unscrew the load lock door from its post (counterclockwise).
3. Clean the load lock O-ring and the flat side of the door with a clean lab wipe and alcohol.
4. Replace the load lock door by screwing it clockwise back on to the post.
5. Tighten the door until it seals against the O-ring.

Warranty and Service Agreements

The ProteinChip SELDI system that is delivered as part of a ProteinChip SELDI system package has three components: the ProteinChip SELDI reader, ProteinChip data manager software, and ProteinChip arrays. Bio-Rad Laboratories, Inc. offers a number of warranty options for purchase to cover reader servicing and upgrades of ProteinChip data manager software beyond the initial warranty. Please call your local Bio-Rad office for complete information on our warranties.

Getting Technical Assistance

For technical service, call your local Bio-rad office, or in the US, call 1-800-4BIORAD (1-800-424-6723).

Moving the ProteinChip SELDI System Reader

The ProteinChip SELDI system reader is not intended to be carried by hand. Carrying the reader is not recommended because its weight poses a significant risk of physical harm. In the event that it is necessary to move the reader, use the following guidelines:

- If a lift or dolly is to be used, the reader should first be placed in its original shipping crate
- If the original shipping crate is not available, the reader can be strapped to a pallet capable of supporting its weight

Do not use any device that will support the reader by only one edge because the frame may bend.

It is recommended that you contact Bio-Rad technical support before moving the reader.

Appendix A: Networking the ProteinChip SELDI System

The ProteinChip SELDI system requires a computer that serves as both the ProteinChip data manager server and the primary workstation. Additional client workstation computers can be networked to the reader (Fig. 22). Connecting the ProteinChip SELDI system to a network gives the flexibility to perform data analysis and monitor data acquisition.

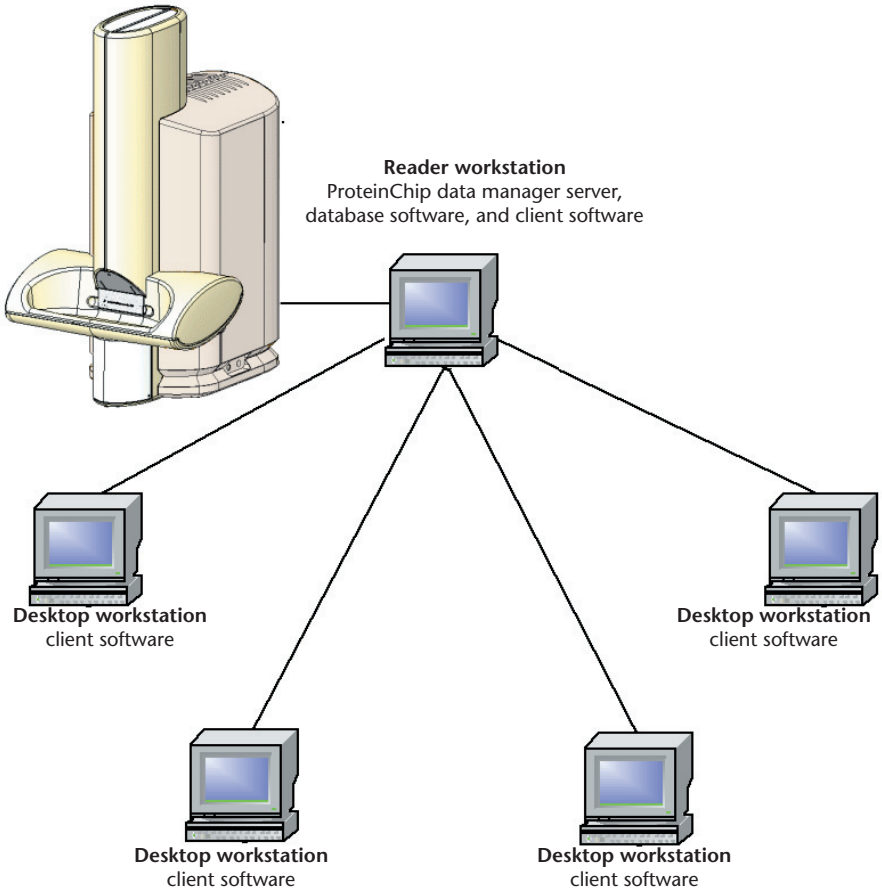


Fig. 22: Client-server configuration for the ProteinChip SELDI System.

Two methods can be used to network the ProteinChip SELDI system instrument and its workstation:

- Dynamic host configuration (DHCP), or
- Assigning a static IP address to each device.

Please refer to the section appropriate to the method.

NOTE

These instructions should only be used by persons that have experience with computers and networking.

Networking the ProteinChip SELDI System Using DHCP

Overview

1. Verify the reader software version
2. Set the reader to DHCP
3. Change the server to DHCP
4. Redirect client computers to new server address
5. Obtain new license file (if necessary)
6. Connect to the reader
7. Edit the **Instrument Options** settings

NOTE

These instructions assume that the reader and the computer are connected through a single crossover cable (usually a red cable) and is not currently plugged into your general network. Also, it is assumed that the system is working properly.

Verify the Reader Software Version

In order to assign IP addresses using DHCP, the reader software must be at version R 01.01.13 or later. The version number can be checked on the reader web page.

1. Open Internet explorer on the client workstation.
2. Enter in the following URL into the address bar:
   http://192.168.1.200.
3. The reader web page will appear (Fig. 23).

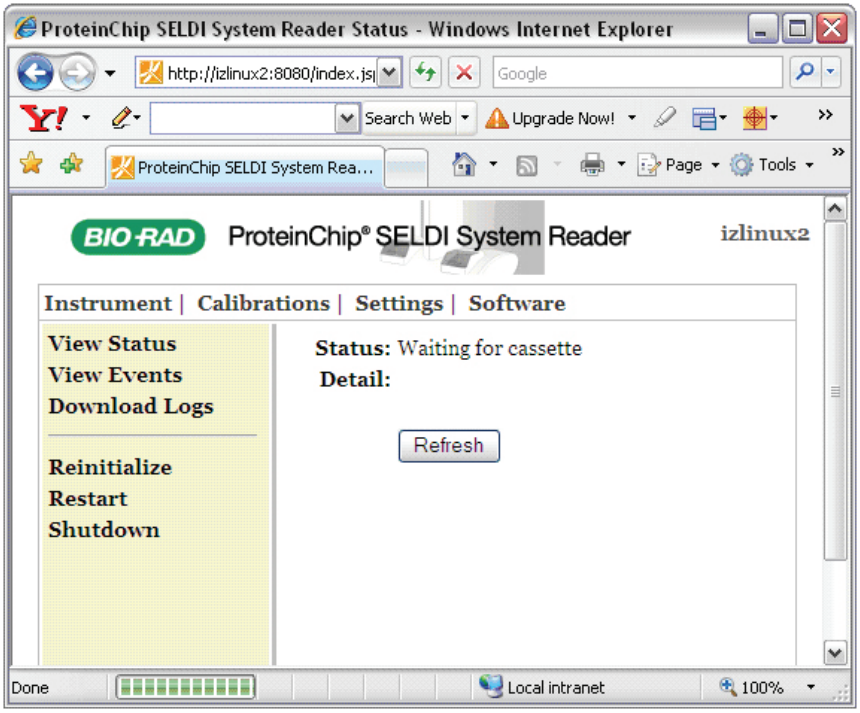


Fig. 23: The reader web page.

4. Next, click the **Software** link. If the first number in the **Current Software Version** is 01, the last number must be greater than or equal to 13 to use DHCP. Otherwise, you should use a static IP address (refer to Networking the ProteinChip SELDI System Using Static IP Addresses on page 38).

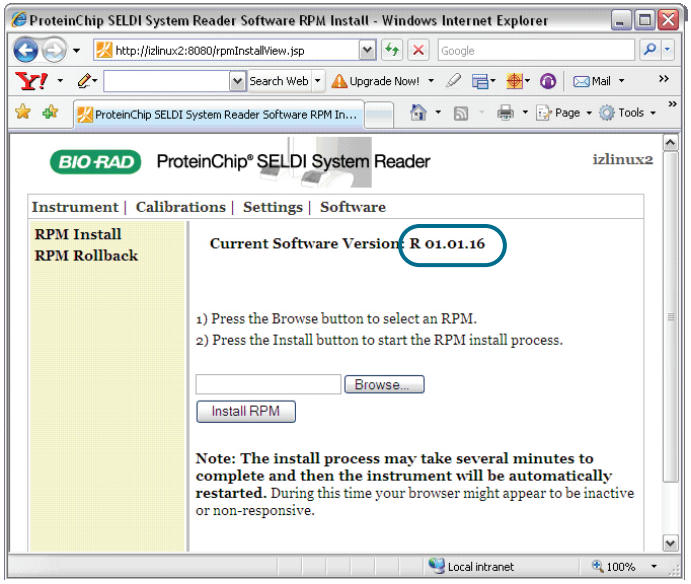


Fig. 24: Checking the reader software version.

Set the Reader to DHCP

By default, the reader is configured with the IP address 192.168.1.200 when it is initially installed, and is set up to communicate with the supplied workstation (IP address 192.168.1.10). The workstation is used to update the reader settings.

NOTE

If you need to configure a separate computer to communicate with the reader, please see the troubleshooting section.

1. Make sure that no one is using the reader.
2. Open Internet Explorer on the client workstation.
3. Enter the following URL into the address bar:
   http://192.168.1.200.
   The reader web page shown in Fig. 25 will appear.

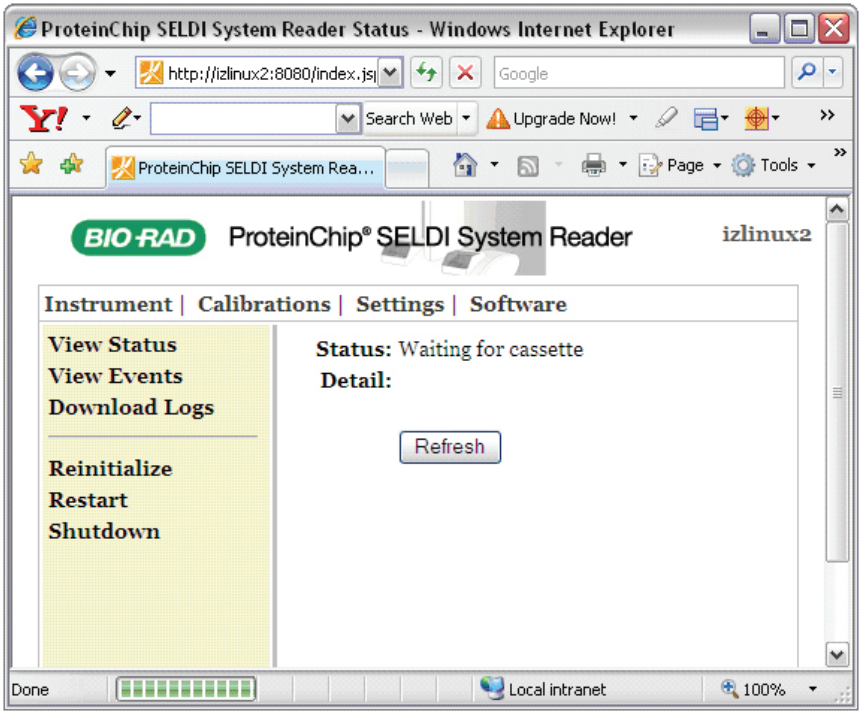


Fig. 25: The reader web page.

4. Click on the **Settings** link. The **Network Settings** page will appear (Fig. 26).

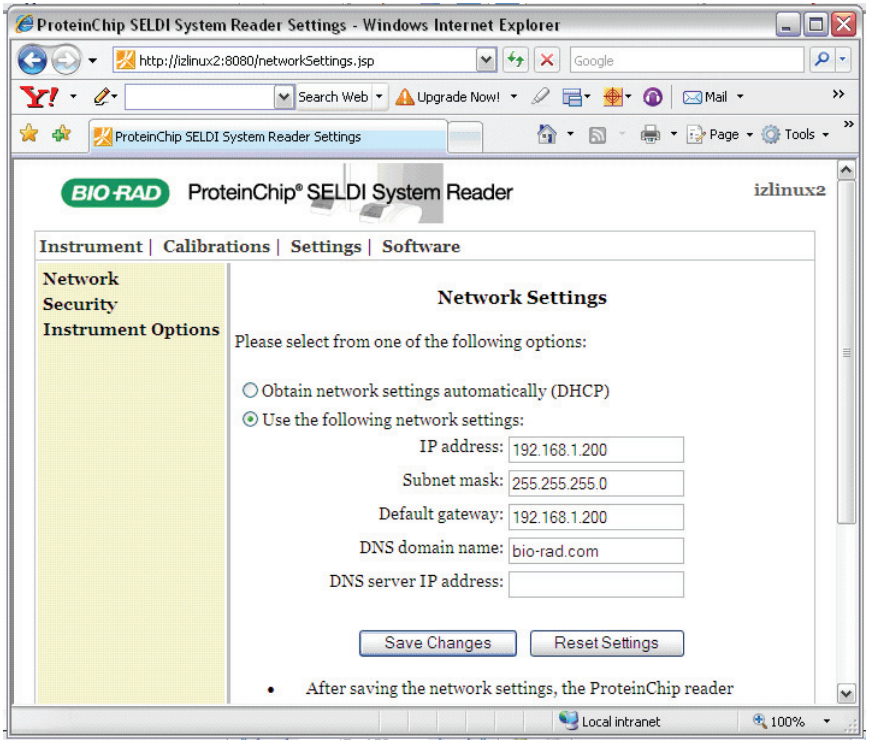


Fig. 26: The **Network Settings** web page.

5. Click the **Obtain network settings automatically (DHCP)** option then click the **Save Changes** button. The changes may take a few minutes to take effect.

IMPORTANT

*Clicking the **Save Changes** button will change your reader's settings immediately. Thereafter, the client workstation will be unable to communicate with the reader until the workstation's settings are also changed.*

6. Unplug the cross-over cable, and plug the network cable from the reader into network outlet, using a standard network cable (do not use the red cross-over cable, as it will not work).

7. Record the reader's hostname. The format of the hostname is pcs4000-xxxx, where xxxx are the last 4 digits from the serial number, as shown in Fig. 27. You will find the serial number on the reader itself on lower left side (when facing the front of the reader).

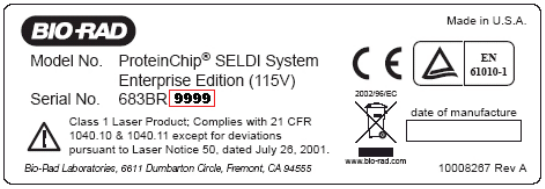


Fig. 27: The reader serial number.

8. Test the connection by using a computer already on your network to ping the reader's hostname (from the command prompt, type **ping** followed by the hostname). Be aware that it may take a few minutes for the DHCP settings to take effect. If the computer receives a reply to the ping, then the reader settings have been changed correctly. If you cannot ping the reader hostname, proceed to the Troubleshooting section (page 48).

Change the Server to DHCP

1. In the Windows **Start** menu, select **Control Panel** | **Network Connections** | **Local Area Connection** | **Properties** dialog. Under **This computer uses the following items**, highlight **Internet Protocol TCP/IP**, then click **Properties**. This will open the **Internet Protocol Properties** dialog box as shown in Fig. 28.

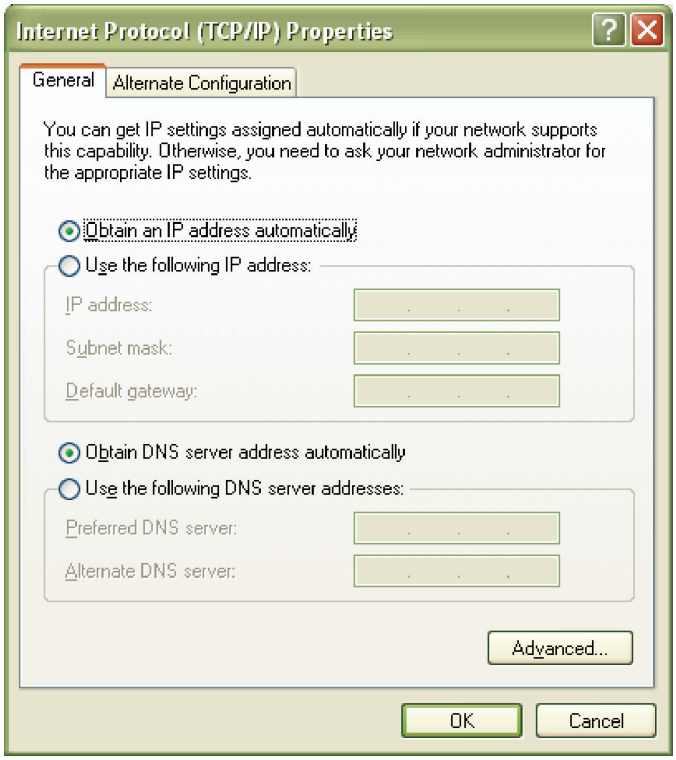


Fig. 28: The **Internet Protocol (TCP/IP) Properties** dialog box.

2. Click on **Obtain an IP address automatically** and click **OK**.
3. Test the connection. Use a different computer already on your network to ping the server's hostname (from the command prompt, type **ping** followed by the hostname). Be aware that it may take a few minutes for the DHCP settings to take effect. If the computer receives a reply to the ping, then the reader settings have been changed correctly. If you cannot ping the reader hostname, proceed to the Troubleshooting section (page 48).

Redirect Client Computers to the New Server Address

The new server settings must be entered onto each installation of ProteinChip data manager client software separately.

1. Start the client.
2. In the **Login** dialog box, click the "…" button. This will open the **Servers** dialog box (Fig. 29).

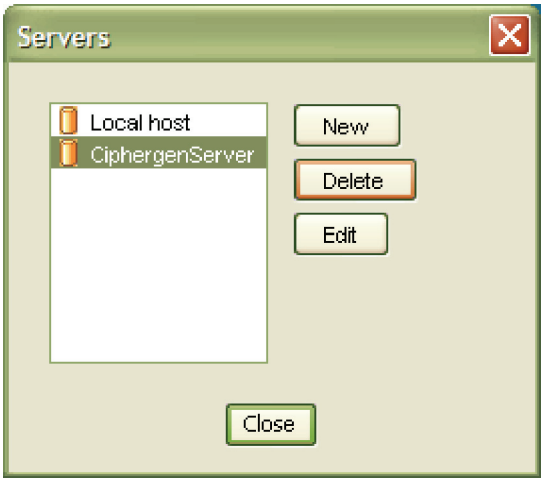


Fig. 29: The **Servers** dialog box.

3. Highlight the alias for the current server (not the localhost) and click the **Edit** button. The **Edit Server** dialog box will open (Fig. 30).

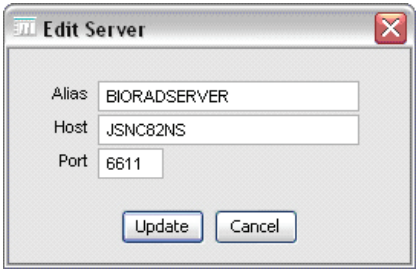


Fig. 30: The **Edit Server** dialog box.

4. In the **Edit Server** dialog box, enter the server's hostname into the **Host** field. The server's hostname can be obtained by opening the Windows **Control Panel**, opening the **System** item, then click on the **Computer Name** tab. The hostname is given in the **Full computer name** field.
5. Click the **Update** button, then close the **Servers** dialog.

Obtain a New License File (If Necessary)

After changing the server's IP address, it may be necessary to obtain a new license file.

1. Log in using the ProteinChip data manager client software.
2. If either of the messages shown in Fig. 31 appears, the computer's settings do not match the settings specified in the current license file.

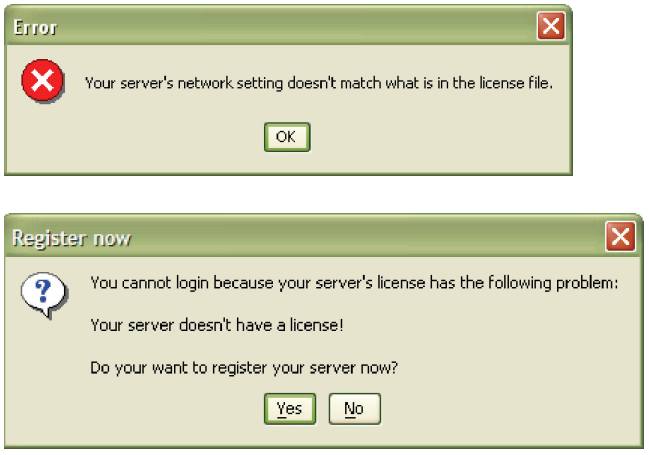


Fig. 31: Errors produced when the server needs a new license file after changing the IP address.

3. Send an email to lsg_techserv_us@BIO-RAD.com, containing the following information (see How To on page 48 for information on finding some of the necessary information):
   - Company name
   - ProteinChip data manager software version
   - Server IP address
   - Server's MAC (physical) address
   - Server hostname
   - Personal Edition or Enterprise Edition

Connect to the Reader

After logging in as the "admin" user, you must specify the new reader hostname in the ProteinChip data manager client software.

1. Log in to the client software.

2. Click on the **Instruments** node in the **Explorer** tree. A table of the available instrument will be displayed in the main pane of the software (Fig. 32).

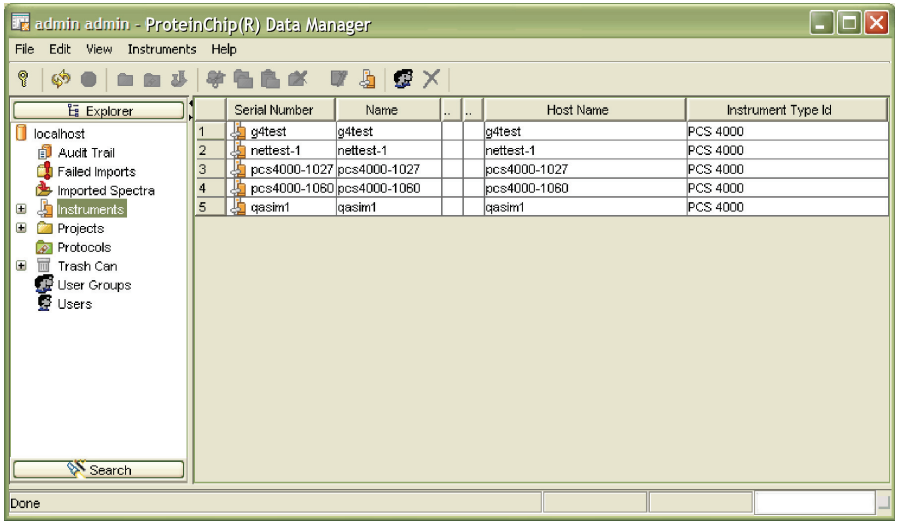


Fig. 32: Connecting the client software to a reader.

3. Right-click on the desired reader in the table, then select **Properties** from the pop-up menu. The **Instrument Properties** dialog box will open.

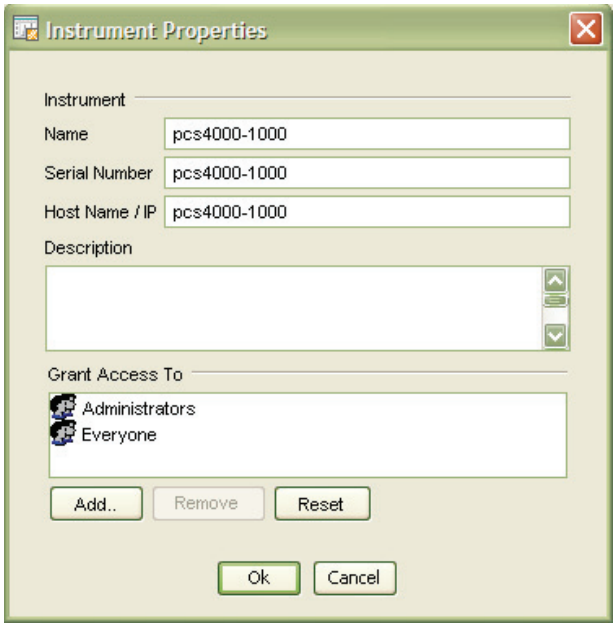


Fig. 33: The **Instrument Properties** dialog box.

4. Enter the hostname into the **Host Name/IP** field. Click **OK** to save the change and close the dialog box.
5. Click on the reader name in the **Explorer** tree to connect to the reader. You will see the **Home** tab screen similar to the one in Fig. 34.

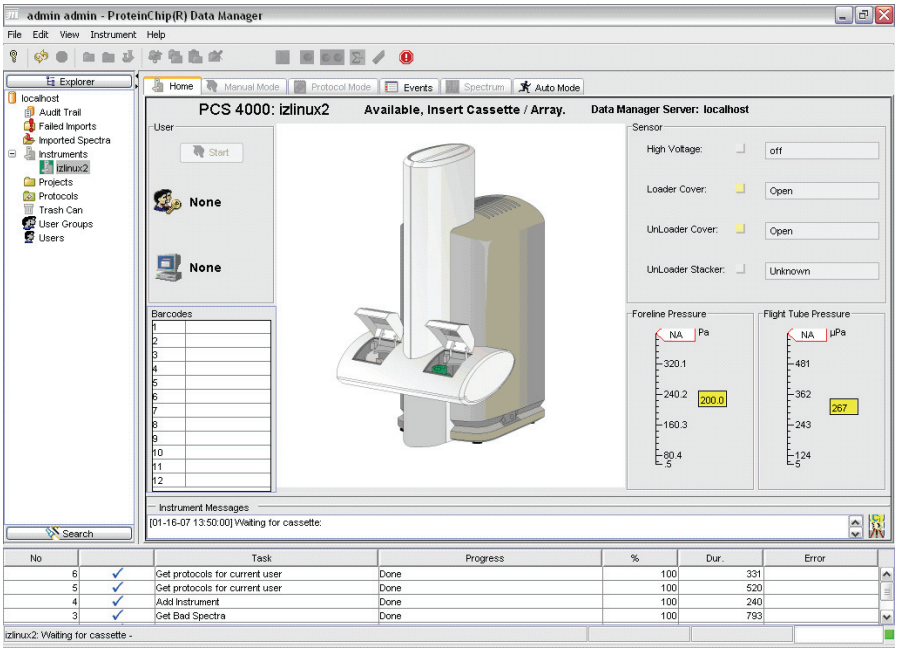


Fig. 34: The **Home** tab of the ProteinChip data manager software.

Edit the Reader Options

After connecting to the reader, you must enter the server's hostname into the reader (see the How To on page 48 to find the server's current hostname).

1. After connecting to the reader, select **Instrument** > **Instrument Options** from the menu. The **Instrument Options** dialog box will open (Fig. 35).

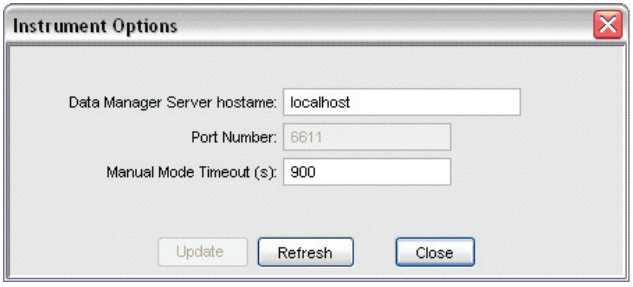


Fig. 35: The **Instrument Options** dialog box.

2. Enter the hostname of the server into the **Data Manager Server hostname** field.
3. Click the **Update** button to save the changes.

NOTE

If the server hostname does not save properly (i.e. reverts back to its original settings, please see Instrument Options in the Troubleshooting section, starting on page 48.)

Networking the ProteinChip SELDI System Using Static IP Addresses

Overview

1. Obtain static IP addresses from the local IT group for server and the reader
2. Assign static IP to reader
3. Assign static IP to server computer
4. Redirect client computers to new server address
5. Obtain new license file (if necessary)
6. Connect to the reader
7. Edit the **Instrument Options** settings

Obtain Static IP Address

Static IP addresses are required for the reader and server in order to ensure uninterrupted network communication between the ProteinChip SELDI system reader and the server.

You will need the following pieces of information for the server and the reader:

- IP address
- Subnet mask
- Default gateway
- DNS domain name
- DNS server IP address

Assign Static IP to the Reader

The reader should already be configured with the IP address 192.168.1.200 when it arrived, and should already be set up to communicate with the supplied workstation. The workstation will be used to update the reader settings.

If you need to configure a separate computer to communicate with the reader, please see the troubleshooting section.

1. Make sure that no one is using the reader.
2. Open Internet Explorer on the client workstation.
3. Enter the following URL into the address bar:

   http://192.168.1.200.

   The reader web page shown in Fig. 36 will appear.

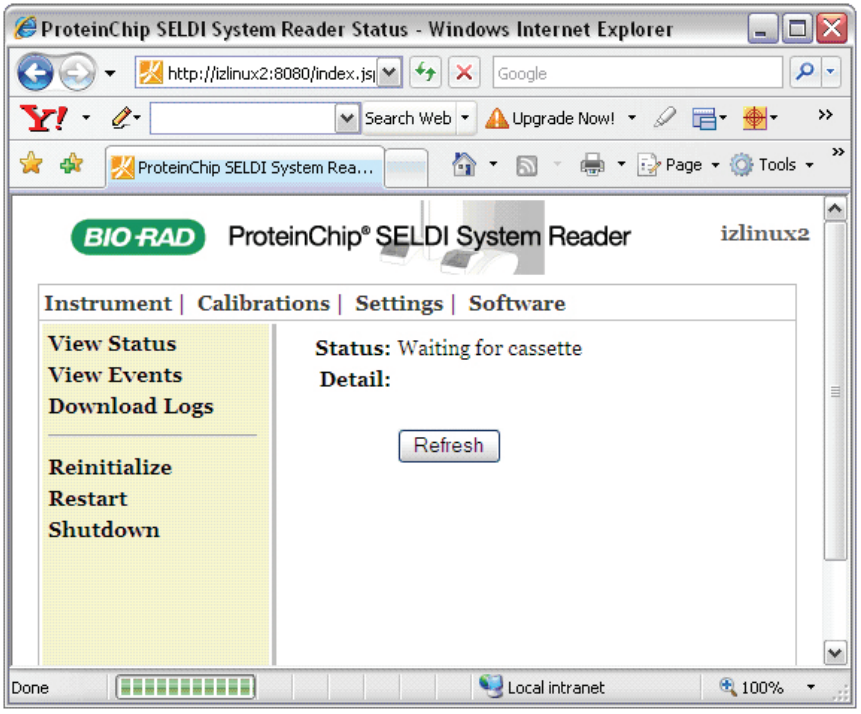


Fig. 36: The reader web page.

4. Click on the **Settings** link. The **Network Settings** page will appear (Fig. 37).

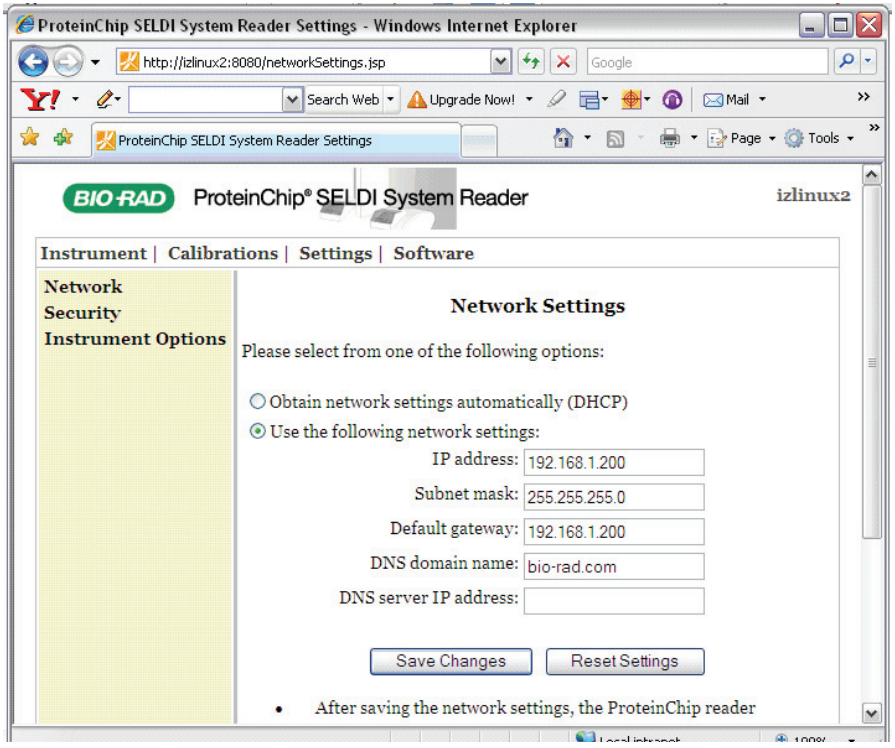


Fig. 37: The **Network Settings** web page.

5. Enter the network settings for the reader obtained from your IT group, then press the **Save Changes** button. The changes may take a few minutes to take effect.

IMPORTANT

*Clicking the **Save Changes** button will change your reader's settings immediately. Thereafter, the client workstation will be unable to communicate with the reader until the workstation's settings are also changed.*

6. Plug the network cable from the reader into a network outlet (do not use the red cross-over cable, as it will not work).

Assign a Static IP to the Server Computer

A second static IP address must be given to the server computer.

1. In the Windows **Start** menu, select **Control Panel** | **Network Connections** | **Local Area Connection** | **Properties** dialog. Under **This computer uses the following items**, highlight **Internet Protocol TCP/IP**, then click **Properties**. This will open the **Internet Protocol Properties** dialog box as shown in Fig. 38.

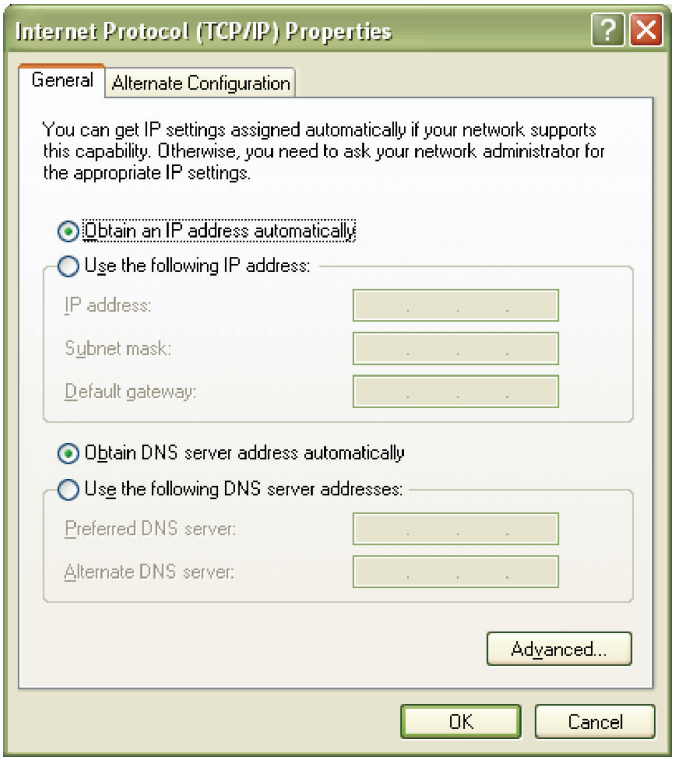


Fig. 38: The **Internet Protocol (TCP/IP) Properties** dialog box.

2. Click on **Use the following IP address** and enter the static IP address, subnet mask, default gateway and DNS server information obtained from IT.
3. Test the connection. Use a different computer already on your network to ping the server's hostname (from the command prompt, type **ping** followed by the hostname). Be aware that it may take a few minutes for the

DHCP settings to take effect. If the computer receives a reply to the ping, then the reader settings have been changed correctly. If you cannot ping the reader hostname, proceed to the Troubleshooting section (page 48).

Redirect Client Computers to the New Server Address

The new server settings must be entered onto each installation of ProteinChip data manager client software separately.

1. Start the client.
2. In the **Login** dialog box, click the "…" button. This will open the **Servers** dialog box (Fig. 39).

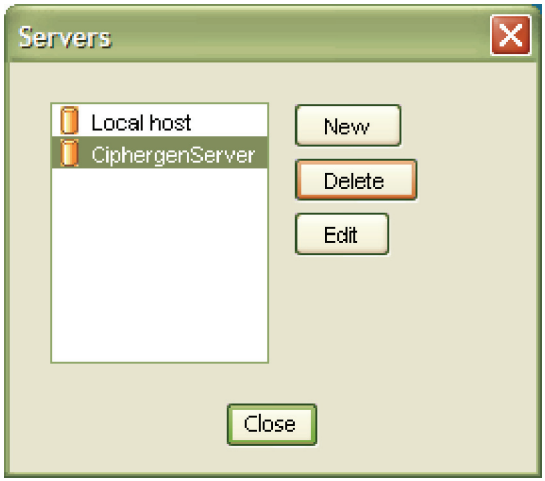


Fig. 39: The **Servers** dialog box.

3. Highlight the alias for the current server (not the localhost) and click the **Edit** button. The **Edit Server** dialog box will open (Fig. 40).

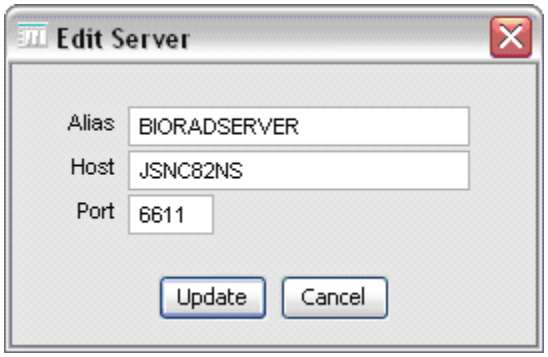


Fig. 40: The **Edit Server** dialog box.

4. In the **Edit Server** dialog box, enter the server's new IP address into the **Host** field.
5. Click the **Update** button, then close the **Servers** dialog.

Obtain a New License File (If Necessary)

After changing the server's IP address, it may be necessary to obtain a new license file.

1. Log in using the ProteinChip data manager client software.
2. If either of the messages shown in Fig. 41 appears, the computer's settings do not match the settings specified in the current license file.

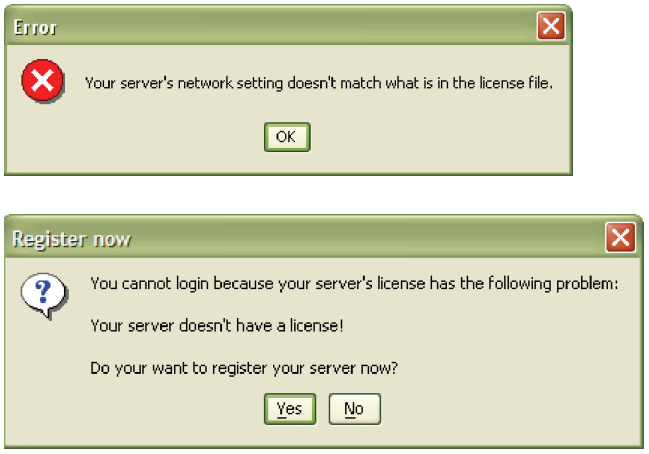


Fig. 41: Errors produced when the server needs a new license file after changing the IP address.

3. Send an email to lsg_techserv_us@BIO-RAD.com, containing the following information (see How To on page 48 for information on finding some of the necessary information):
   - Company name
   - ProteinChip data manager software version
   - Server IP address
   - Server's MAC (physical) address
   - Server hostname
   - Personal Edition or Enterprise Edition

Connect to the Reader

After logging in as the "admin" user, you must specify the new reader IP address in the ProteinChip data manager client software.

1. Log in to the client software.
2. Click on the **Instruments** node in the **Explorer** tree. A table of the available readers will be displayed in the main pane of the software (Fig. 32).

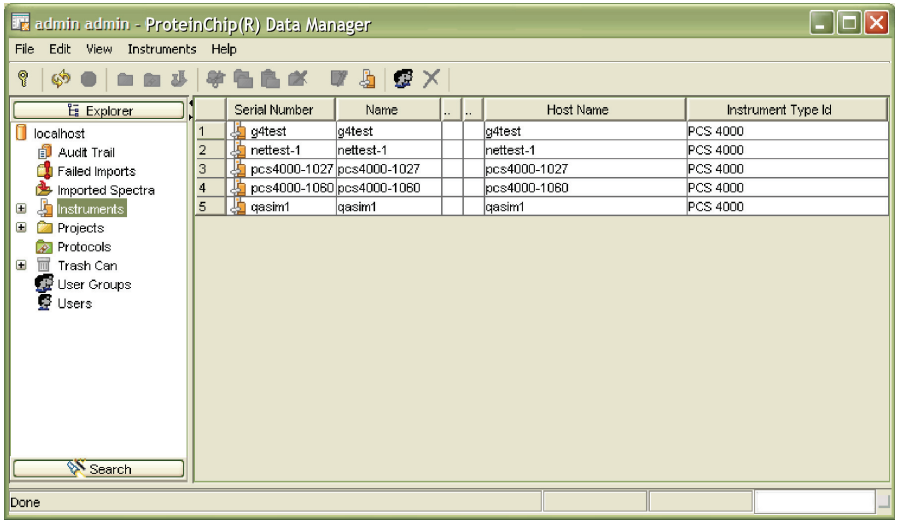


Fig. 42: Connecting the client software to a reader.

3. Right-click on the desired reader in the table, then select **Properties** from the pop-up menu. The **Instrument Properties** dialog box will open.

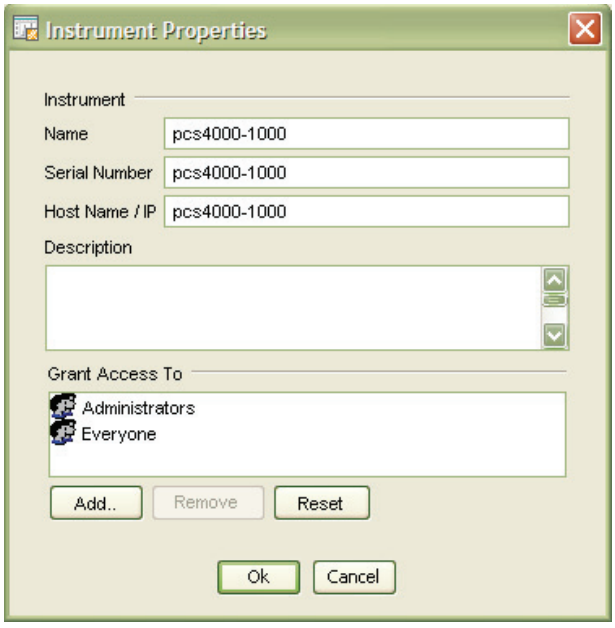


Fig. 43: The **Instrument Properties** dialog box.

4. Enter the new IP address into the **Host Name/IP** field. Click **OK** to save the change and close the dialog box.
5. Click on the reader alias in the **Explorer** tree to connect to the reader. You will see the **Home** tab screen similar to the one in Fig. 34.

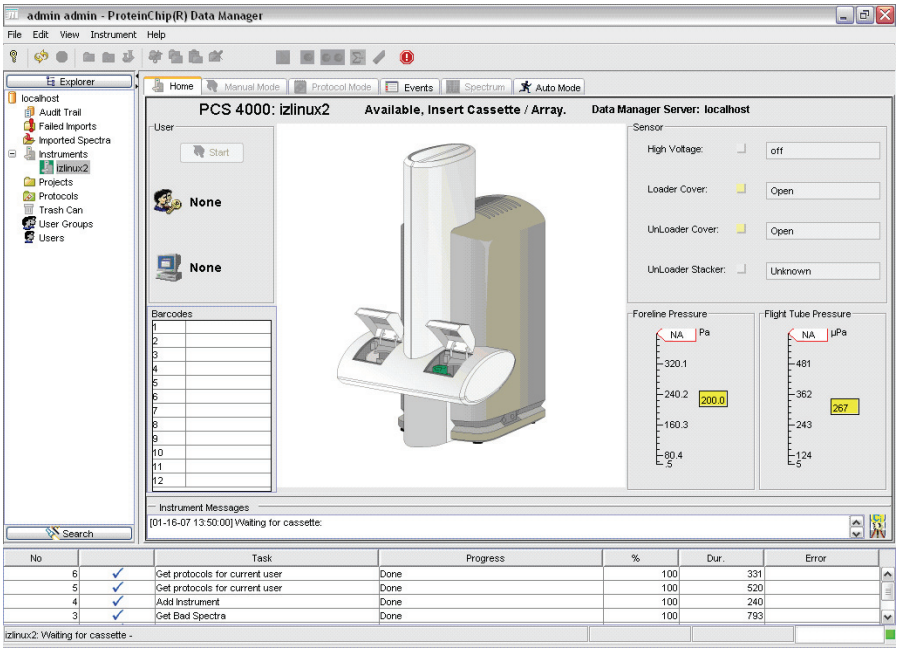


Fig. 44: The **Home** tab of the ProteinChip data manager software.

Edit the Reader Options

After connecting to the reader, you must enter the server's new IP address into the reader.

1. After connecting to the reader, select **Instrument** > **Instrument Options** from the menu. The **Instrument Options** dialog box will open (Fig. 35).

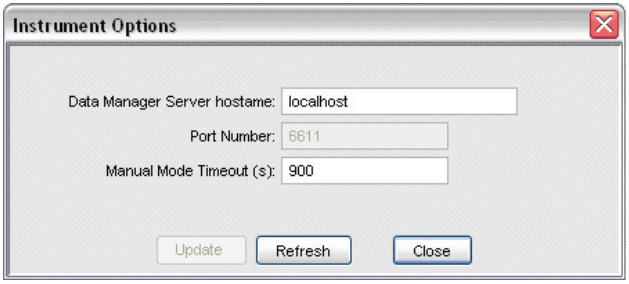


Fig. 45: The **Instrument Options** dialog box.

2. Enter the IP address of the server into the **ProteinChip data manager server hostname** field.
3. Click the **Update** button to save the changes.

NOTE

If the server hostname does not save properly (i.e. reverts back to its original settings, please see Instrument Options under Troubleshooting.)

Troubleshooting

The reader's backdoor IP address

After changing the reader IP address, if you are unable communicate with the reader, you can simply communicate with the reader using its backdoor IP address. The reader is programmed with a backdoor IP address of 10.234.234.234.

To access the reader web page, connect a client computer to the reader using the network hub, or using the supplied crossover cable. Make sure to set the computer's networking settings to access the reader. For example, change the computer's IP address to 10.234.234.100, set the subnet mask to 255.255.255.0, and the default gateway to 10.234.234.100.

Instrument Options

When using the ProteinChip data manager client software, there may be occasions in which you cannot edit the hostname in the **Instrument Options** dialog box, or after editing the hostname in the dialog box it reverts back to its initial value. In this case you need to change the hostname using the reader's web page:

1. Log onto the reader's web page at http://<reader hostname or IP>/index.jsp.
2. Click on the **Settings** link, then click on the **Instrument Options** link.
3. Enter the server's hostname in this field and click the **Update** button. You can test the connection to the server by clicking the **Test Connection** button.

How To

Find the server's hostname, IP and MAC addresses

1. On the server computer, select **Start** | **Run**.
2. Type in 'cmd' then click the **OK** button.

3. At the command prompt, type in 'ipconfig /all' then press **Enter**.
4. The hostname will be listed under **Windows IP configuration**, and the IP address under **Ethernet adapter Local Area Connection**. The physical (or MAC) address will be listed here as well.

Find the reader's MAC address

Ping the reader from another computer.

1. On the server computer, select **Start** | **Run**.
2. Type in 'cmd' then click the **OK** button.
3. At the command line, type "arp -a". This will result in a list of IP addresses and the MAC (physical) addresses that they correspond to.

Questions or Comments?

Please send an email to lsg_techserv_us@bio-rad.com, or contact your local Bio-Rad office.

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