
Waters[®] Empower[®] Software

A1100 System Configuration

Instructions for Ethernet Control

In order to configure an A1100 system for Ethernet control or to acquire A1100 DAD 3D data in Empower Software, it is required to configure an instrument network card in the A1100 detector as well as an additional network card in the acquisition server. It is also required to install both the Empower Instrument Support Service Pack 2 and an A1100 License (key disk). The A1100 *Plus* License is required if you are configuring an A1100 DAD for 3D spectral data acquisition. Empower service pack media is available at no charge and is also available for download from www.waters.com/support. The Empower Instrument Support Service Pack 2 provides support for Agilent A1100 systems (in both 2D and 3D mode) using Ethernet connectivity.

Note: When the Empower Instrument Support Service Pack 2 is not installed, only serial control of 2D A1100 systems is allowed. The G1315A or G1315B DAD detector must be configured as a multiwavelength detector and is capable of 2D data collection only.

Please refer to the Empower Software Instrument Support Service Pack 2 Release Notes for additional A1100 DAD support information and the Waters Ethernet Instrument Getting Started Guide (part number 71500074403) for additional configuration information.

System and Cabling Requirements

- All supported A1100 modules on the stack with firmware version A.05.04, A.05.06, or A.050.9. Please refer to the Empower Control of 1100 Series Modules Reference Sheet for information on supported A1100 modules. For the most recent A1100 firmware support information, please see the Waters Elite Support Site at www.waters.com/support.
- Computer running Empower Software, build 1154 and the Instrument Support Service Pack 2 containing a network interface card (NIC), 10/100 Mbps, referred to as an instrument network card when it is in an acquisition server and used for chromatographic instrument control. This instrument network card should be in addition to any NICs used to connect the computer to a network. The appropriate network drivers and the Internet (TCP/IP) protocol should be installed for the instrument network card. The Waters DHCP Service will assign IP settings during the configuration described later in this procedure.
- Agilent G1846A (JetDirect 400N J4100A) network card or a G1369A LAN Communication card installed in the detector. If using a G1315A DAD: older G1315A series DADs cannot take the LAN card unless the main board is upgraded. The main board part number is G1315-66540. All G1315A serial numbers greater than DE64301532 and US64400333 will take the LAN card.

If you are using the G1369A LAN Communication card, you must manually configure its IP address using the A1100 handheld controller. If you are using the G1846A JetDirect card, the Waters DHCP

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server will automatically assign an IP address to the LAN card. Both sets of instructions are contained in this document.

- If you are not using a network switch, connect the instrument network card in the computer to the NIC in the A1100 detector with a cross-over cable

OR

- If you are using a network switch, connect one end of one straight-through cable to the NIC in the A1100 detector, then connect its other end to one port of the switch. The computer is connected directly to another port of the switch using another straight-through cable.

Note: *The A1100 detector should not be connected to the corporate network.*

- The A1100 detector which contains the LAN card (JetDirect or LAN Communication card) must be properly configured for BootP operation. This is the default setting and should generally not need to be set. It can, however, be configured using the G1323B Handheld Controller:

1. On the G1323B Handheld Controller, select **Views > System > Configure > DA Detector > Interfaces > MIO**. You will get a warning telling you to ensure that the system is not acquiring data.
2. Click **Continue**. The Handheld Controller will take a moment to read the card. Scroll down to the TCPIP area. The Config By setting should read 'DHCP'. If it doesn't, choose **Service**. You will get a list of settings. The CFG Network setting should read 'Yes.' If it says 'No' change it to **Yes** by pressing the **Enter** button and then using the arrows to select **Yes**.
3. Once the CGF Network setting is set to Yes, verify the CFG TCPIP setting. It should be set to Yes. If it is not, press the **Enter** button and use the arrows to change it to **Yes**.
4. Once the CGF TCPIP setting is set to Yes, verify the BootP setting. It should be set to Yes. If it is not, press the **Enter** button and use the arrows to change it to **Yes**.
5. Accept these changes by selecting **Done > OK**.
6. Accept all the changes again once you are back to the main screen by selecting **Done (F6)**.
7. When prompted to restart the module, select **OK**.

Installation Instructions

Note: It is important to install the Instrument Support Service Pack 2 prior to installing the A1100 Plus key disk. If you try to install the A1100 Plus key disk onto a computer that does not have Instrument Support Service Pack 2 installed, a message stating that the option is already installed will occur.

It is OK if the previous A1100 key disk (old style) is currently installed when installing ISSP2.

1. Install the Instrument Support Service Pack 2 following the instructions in the Instrument Support Service Pack 2 Release Notes.
2. Install the A1100 Plus License:
From the Windows menu, choose **Start > Run**. Do one of the following:

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- Enter “**X:\setup**” (excluding quotation marks) in the Run dialog (where ‘X’ is the letter of your floppy drive).

OR

- Browse to the floppy drive, double click the **setup** file.

3. Follow all prompts.

Configuration Instructions

Note: The following procedure describes the configuration of the instrument network card in the acquisition server PC which in turn allows the Waters DHCP (Dynamic Host Configuration Protocol) Server to assign an IP address to the NIC in the A1100 detector.

*This procedure assumes that the Jetdirect or LAN Communication card in the A1100 detector is physically connected to the instrument network card in the Empower acquisition server using either a cross-over or a straight-through cable (see **the System and Cabling Requirements** section of this document) and that any other A1100 instruments in the stack are connected using Agilent’s CAN architecture.*

If you will be configuring multiple A1100 stacks, it is recommended to connect and configure them one at a time. It is recommended to record the Unique Name/Serial Number on a label on the instrument itself. This information can be used to identify which system is located at which address.

The Waters DHCP Server service, upon installation of Instrument Support Service Pack 1 (which is contained in ISSP2), is registered, started, and set to automatic for all Personal workstations and for Enterprise clients and LAC/E³²s. On Enterprise or Workgroup servers, the Waters DHCP service is registered, but it is not started.

When using the DHCP Configuration Wizard to assign an IP address to the instrument network cards used for A1100 control, you can also view and assign the IP address of the network interface card used for corporate network communication. Only users with access to the acquisition server are allowed to access the DHCP Configuration Wizard. Non-privileged users do not have access.

Setting the IP Address for the LAN Communication card in the A1100 Detector using the handheld controller (G1323B with firmware B.02.02 or above):

Note: If you are using the JetDirect card, the IP address for this card in the A1100 detector will automatically be assigned by the Waters DHCP server. It is only required to perform this section of the procedure if you have the LAN Communication card installed in the A1100 detector. If you have the JetDirect card installed in the A1100 detector, proceed to the Setting the IP Address for the Instrument Network Card section of this document.

For additional information on the LAN Communication card, please refer to the *Agilent G1369A LAN Interface User Manual*, Agilent part number G1369-90000.

1. Locate the bank of 8 dip switches on the LAN Communication card. Change dip switch 5 to the **On** position. All other switches should be in the **Off** position. This causes the IP address settings on the LAN Communication card to be set to an Init Mode of 'Using Stored'.
2. On the handheld controller, select **F5, Views > System > Enter**.
3. Select **F2, Configure**. Select the module in which the LAN Communication card is installed and press **Enter**.
4. Select **F1, Interfaces > MIO > Enter**.
5. A Warning message appears. Select **Continue**. A display of all of the TCP/IP settings appears. Make note of the MAC address, as this will be needed in the *A1100 Detector IP Address Configuration and Confirmation* section later in this procedure (step 13 on pages 9 through 10).
6. Select **F1, Service**.
7. Navigate to the IP Address settings (**IP BYTE 1 – 4**). Enter the appropriate value for each byte and select **Enter**.
8. When you have completed your changes, select **Done**.
9. Select **F6, Done > OK**. The module and the handheld controller will reboot.
10. Connect the LAN Communication card in the A1100 detector to the instrument network card in the Empower computer using either a cross-over cable or a straight-through cable as described in the *System and Cabling Requirements* section at the beginning of this document.

Setting the IP Address for the Instrument Network Card:

1. Log into Empower as a user with access to the acquisition server that needs to be configured.
2. Open Configuration Manager and select the Acquisition Servers View.
3. Right-click on the acquisition server that has the instrument network card that you need to configure and select **Properties**. The Acquisition Server Properties page appears (Figure 1).

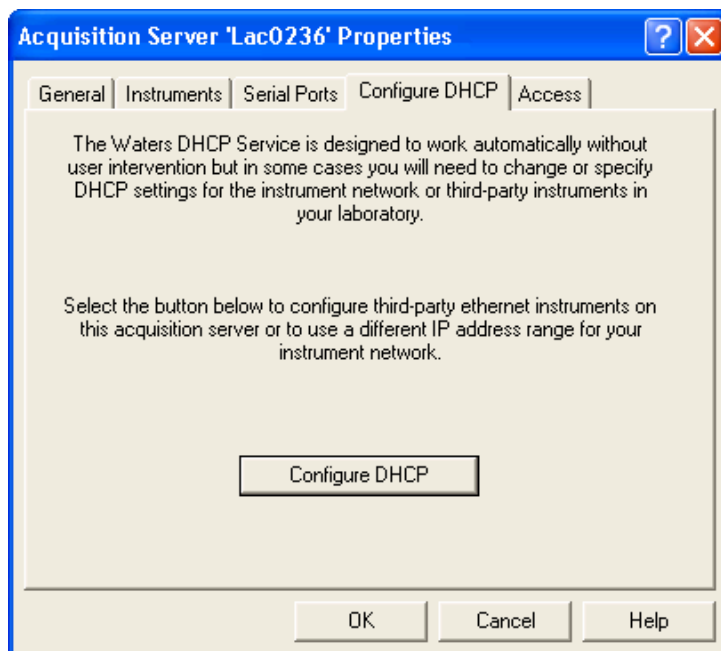


Figure 1: Acquisition Server Properties Page

4. Click the **Configure DHCP** button. The Waters DHCP Server Configuration page appears (Figure 2).

Note: This page lists the configured A1100 detectors. This dialog is empty until a detector(s) is assigned an IP address by the Waters DHCP Server.

If you enabled the system policy Require User Comments on Changes to System Objects, you must enter a comment after clicking the Configure DHCP button. In the System Audit Trail, a "called DHCP Scan" entry appears in the Details column in addition to the comment you entered.

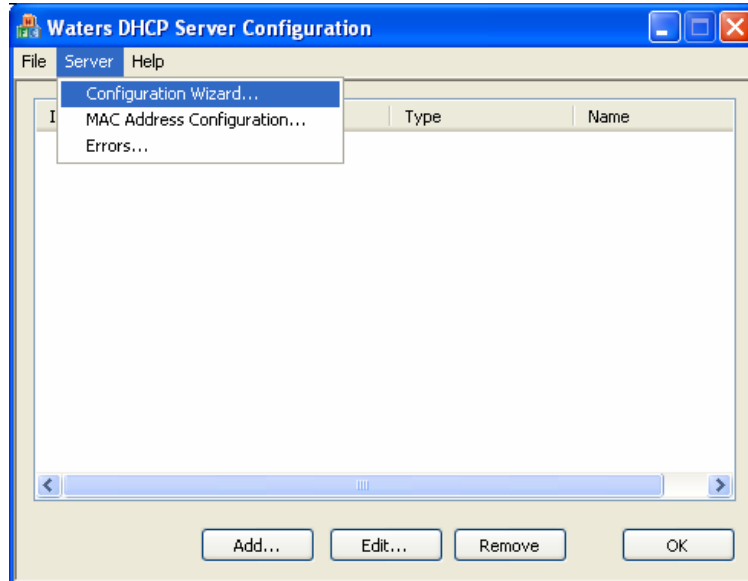


Figure 2: Waters DHCP Server Configuration Page

5. Select **Server > Configuration Wizard**. The Select Network Connection page appears (Figure 3).

Note: This page displays all network cards in the acquisition server and lists the name of the card (the name can be configured in the Windows operating system) as well as the Internet Protocol (IP) address. The IP address is what is generally used as the identifier of the instrument network card. The IP address of the card you are configuring will appear with an initial address of 0.0.0.0 unless it was assigned an address through the operating system or if there is another DHCP server present that may have given it an address.

*It is recommended that the instrument network card be renamed to identify it as the instrument network card, as opposed to the network card used for your corporate network. The Network Card may be re-named from the Windows Control Panel. In Control Panel, right-click on the desired network card (listed in the Network Connections folder), and choose **Rename**.*

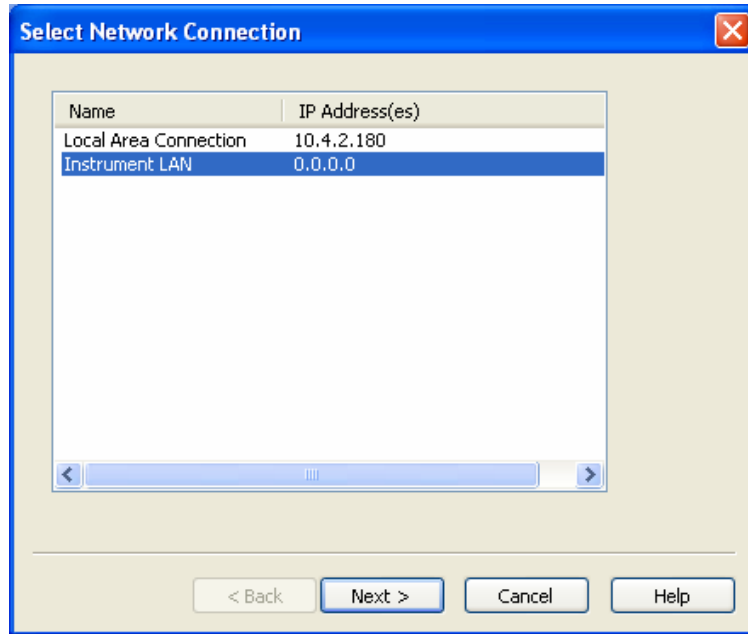


Figure 3: Select Network Connection Page

6. Select the instrument network card you want to configure, then click **Next**. The Select IP Address page appears (Figure 4).

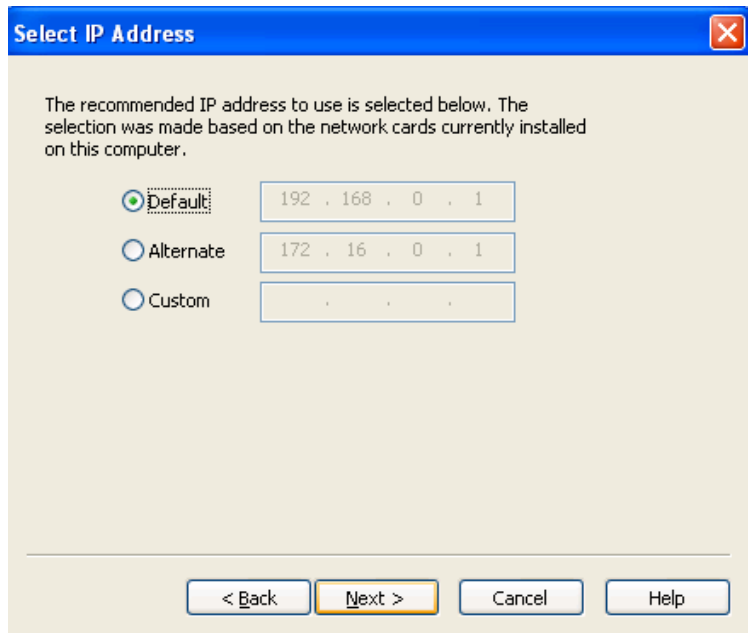


Figure 4: Select IP Address Page

7. Click **Default** (192.168.0.1), then click **Next**. The Reboot Computer page appears (Figure 5).

Note: The chosen IP address will be assigned to the instrument network card in the acquisition server computer. If the default and alternate IP addresses are already assigned to another network card, contact Waters Technical Service for custom settings.

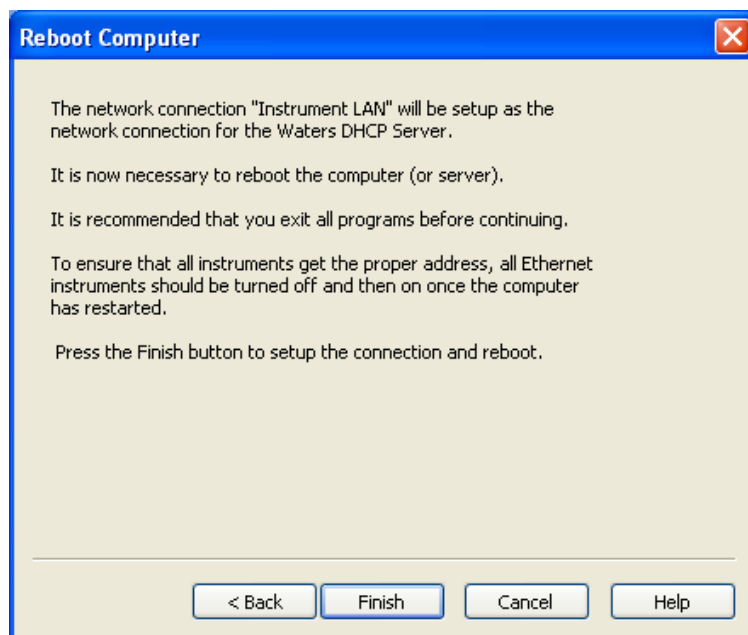


Figure 5: Reboot Computer Page

8. Click **Finish** and then **Yes**. The acquisition server reboots. If you are setting the instrument network card IP address from a client computer, a message appears that instructs you to close the Acquisition Server Properties dialog box.

*Note: If you click **No** in the Waters DHCP Server Configuration dialog box, a message appears to remind you to reboot the computer.*

9. Cycle the power on the A1100 detector after the acquisition server reboots.
10. Verify the IP address information of the instrument network card in the acquisition server: In Configuration Manager, select the Acquisition Server Properties and select the **Configure DHCP** tab.
11. Click the **Configure DHCP** button. The Waters DHCP Server Configuration window opens (Figure 6).

Note: This dialog lists the configured A1100 detectors. This dialog may or may not have instruments listed.

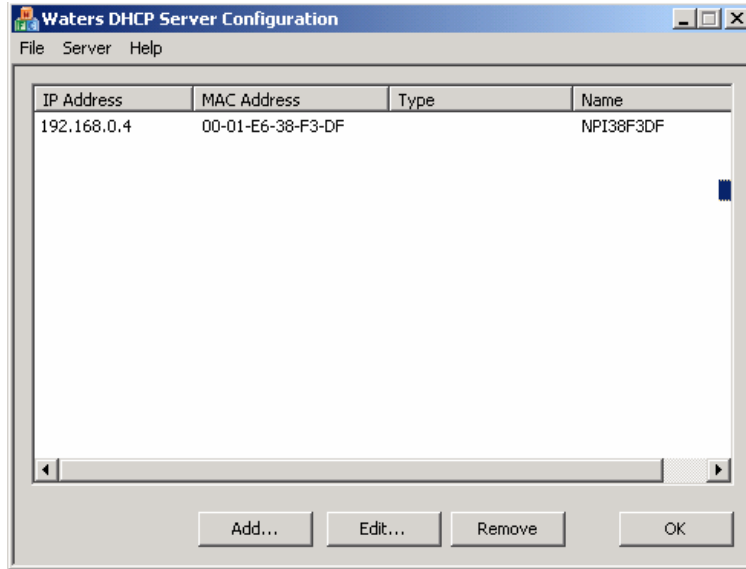


Figure 6: Waters DHCP Server Configuration Page

12. Select **Server > Configuration Wizard** from the menu. The Select Network Connection page appears (Figure 7). Confirm that the correct address, chosen in step 7 appears. The second IP address (64.1.1.1) is for Waters mass detectors and is automatically assigned, regardless of whether or not a Waters mass detector is connected to the acquisition server.

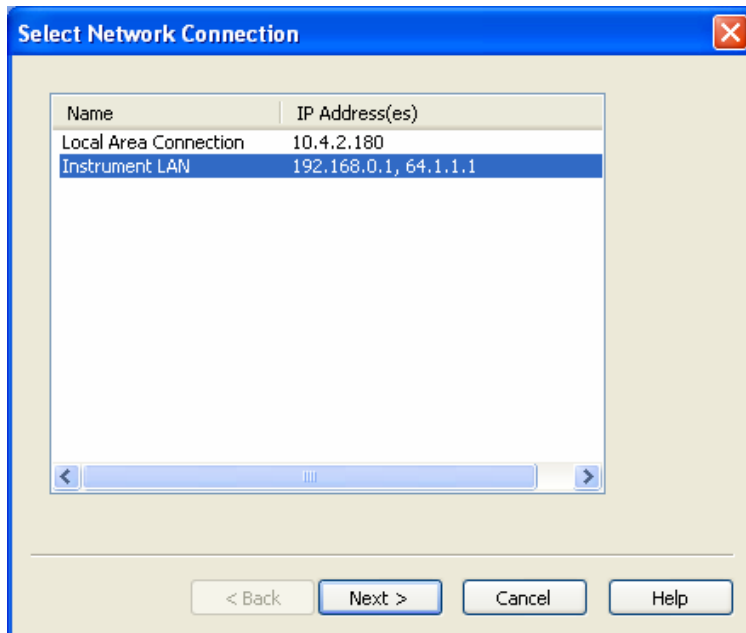


Figure 7: Select Network Connection Page

A1100 Detector IP Address Configuration and Confirmation:

13. Click **Cancel** to return to the Waters DHCP Server Configuration page (Figure 8). This page should list the IP address of the A1100 detector. This is because

the instrument network card in the acquisition server has been configured and the Waters DHCP Server has assigned an IP address to the detector.

Note (for users of the LAN Communication card): *The Waters DHCP Server does not assign an IP address to the detector unless the A1100 detector contains the JetDirect LAN card. If you have the LAN Communication card installed in the A1100 detector, you need to manually specify the IP Address and MAC Address. To do so, click **Add**. Enter the IP Address previously configured in the handheld controller (step 7 on page 4). Enter the MAC address determined using the handheld controller (step 5 on page 4). Select **A1100** as the instrument type. In the Serial Number/Unique Name field, enter a unique name to identify the A1100 detector and click **OK**. The A1100 detector now appears in the Waters DHCP Server Configuration dialog with the Type listed as 'A1100' (Figure 10). Resume this procedure at step 17 below.*

Note (for users of the JetDirect LAN card): *If the IP address is not listed, cycle the power on the A1100 detector.*

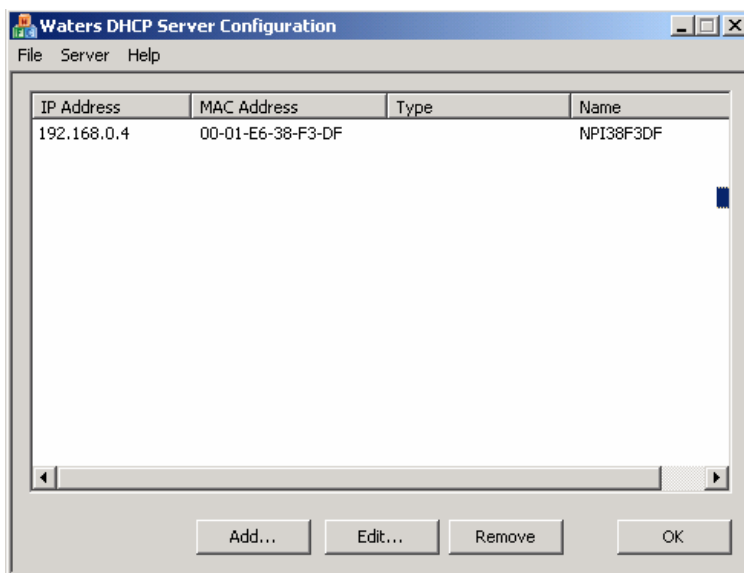


Figure 8: Waters DHCP Server Configuration Page (detector entry is not fully configured and does not have 'A1100' specified)

14. Select an IP address and click **Edit**. The Edit IP Address page appears (Figure 9).

Note: *It is recommended to record the Name listed in this dialog on each detector in order to easily identify each instrument.*



Figure 9: Edit IP Address Page

15. Select **A1100** as the instrument type.
16. If the Serial Number/Unique Name field has an entry, click **OK**. The A1100 detector now appears in the Waters DHCP Server Configuration dialog with the Type listed as 'A1100' (Figure 10).

If the Serial Number/Unique Name field is blank, enter a unique name to identify the A1100 detector and click **OK**. The A1100 detector now appears in the Waters DHCP Server Configuration dialog with the Type listed as 'A1100' (Figure 10).

*Note: If the A1100 detector is incorrectly configured, it cannot be modified. Instead, click the **Remove** button in the Waters DHCP Server Configuration page, cycle the power on the detector and then configure it again.*

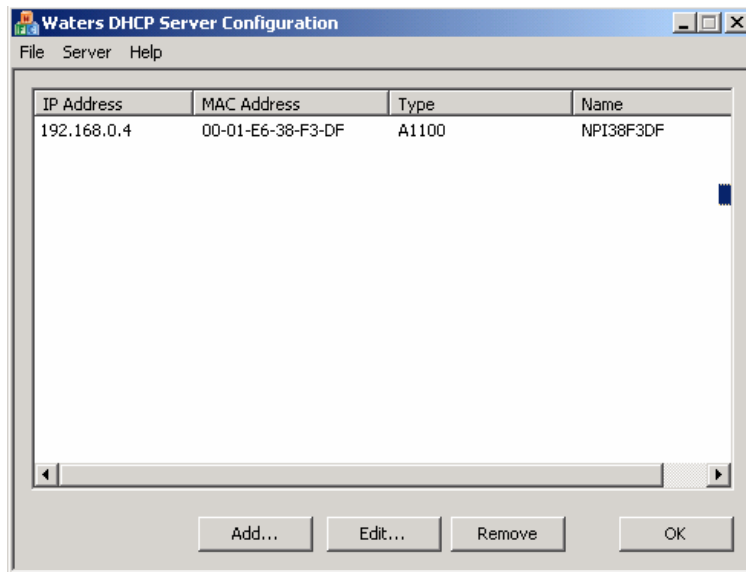


Figure 10: Waters DHCP Server Configuration Page after A1100 Type is Specified

17. Click **OK** to close the Waters DHCP Server Configuration page.

18. If you are adding another A1100 system, physically connect it as described at the beginning of this procedure. Select the **Configure DHCP** tab (Figure 1) and select the **Configure DHCP** button. The Waters DHCP Server Configuration page appears (Figure 8) and lists the IP Address for the newly added A1100 detector. Return to step 14 and continue this procedure.

Note (for users of the LAN Communication card): *If you are adding another A1100 system containing the LAN Communication card, the IP Address for the newly added A1100 detector will not appear. You must manually enter the IP Address and MAC address as described in the note in step 13.*

If you are not adding another A1100 system, proceed to step 19.

19. Select the Instruments Tab in Acquisition Server Properties (Figure 11).

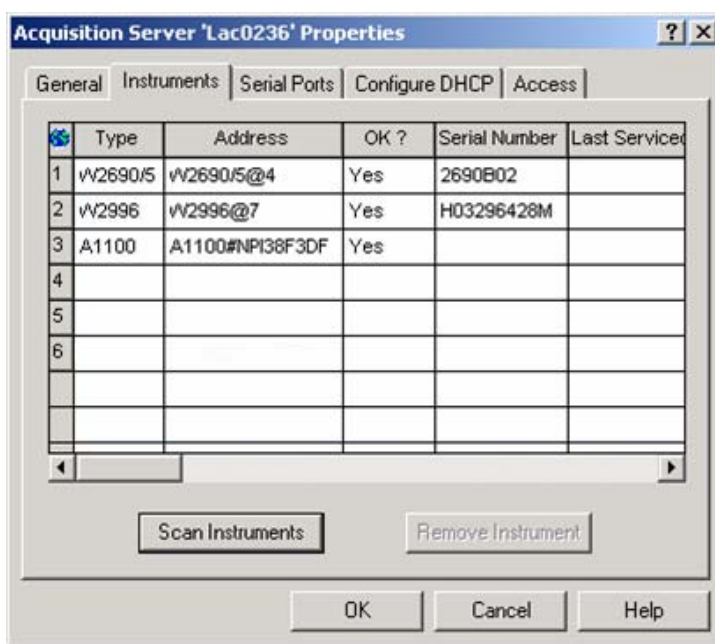


Figure 11: Acquisition Server Properties Page

20. Click **Scan Instruments**. If the instrument's OK status is 'Yes,' scroll over to view module model numbers, firmware versions and installed options.

Note: *All A1100 modules in a system appear as one entry in this list. You can see all modules and firmware versions contained in the system by scrolling to the Details column of the Instruments tab.*

21. Click **OK**.

Creating a System

22. Create a system that includes the A1100 you just configured using the New Chromatographic System Wizard (Figure 12).

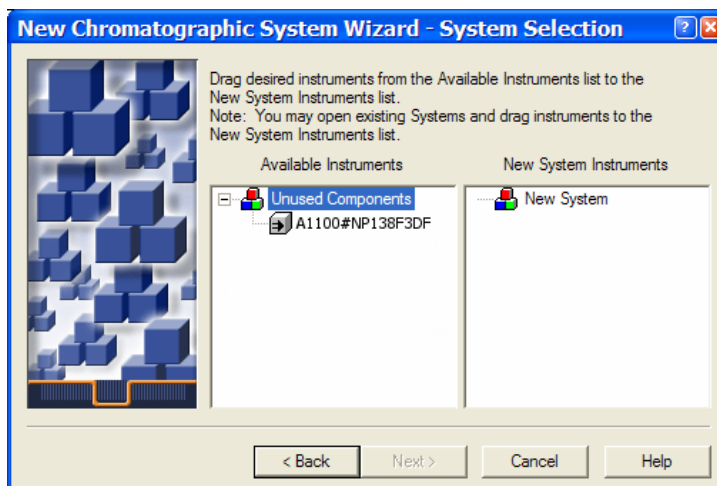


Figure 12: New Chromatographic System Wizard – System Selection Page

23. You are now ready to create an instrument method and a method set and to acquire data using your A1100 system with Empower Software.

Service Pack Uninstall Information

After uninstalling the Instrument Support Service Pack 2, the A1100 *Plus* option (key disk) appears to be uninstalled because the A1100 DAD Support option is no longer listed in the About Empower dialog on that computer. This entry no longer appears in the About Empower dialog because the service pack software required for A1100 DAD operation is no longer present. However, removing the ISSP2 software does not also uninstall the key disk. The key disk can be uninstalled before or after the service pack is uninstalled. (PCS # 31226)

To remove a service pack(s) from your system, run the service pack installation program and deselect the service pack(s) you wish to uninstall.

When any service pack included in this release is uninstalled, a full reload of the Empower executable files is made to ensure the validity of the installation and then any remaining selected service packs are installed in the appropriate order. The registry is updated to reflect the correct list of installed service packs. No Oracle or system files are affected.