Agilent StreamSelect LC/MS System

Setup Guide

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This guide applies to the StreamSelect LC/MS System, which includes the Agilent 6400 Series Triple Quad LC/MS.

For Research Use Only. Not to be used for diagnostic procedures.

Agilent Technologies

What is the Agilent StreamSelect LC/MS System?

The Agilent StreamSelect LC/MS System consists of a single triple quadrupole mass spectrometer and two to four liquid chromatography systems running parallel, staggered analyses. The MassHunter StreamSelect software controls the entire LC/MS system from batch submission to data acquisition. The result is a very efficient and robust handling of the LC/MS analyses.

The StreamSelect LC/MS System can increase the daily throughput of LC/MS analyses up to four-fold through highly efficient use of the analytical capabilities of the mass spectrometer, which results in higher productivity and cost effectiveness.

Where to Find More Information

You can access more information about StreamSelect LC/MS System as follows.

MassHunter StreamSelect Quick Start Guide

This guide gives you an overview of the MassHunter StreamSelect software. It explains how to submit batch samples and how to use the MassHunter StreamSelect software to set up data acquisition methods.

MassHunter StreamSelect Online Help

Consult the *online Help* or tooltips available for the following components of the StreamSelect LC/MS System.

- MassHunter StreamSelect Instrument Configuration
- MassHunter StreamSelect Console
- MassHunter Data Acquisition program

Agilent Web Site

To view support information for MassHunter StreamSelect and other Agilent products, see:

http://www.chem.agilent.com

Installation and Setup

Before you begin

The tasks below must be completed before installing MassHunter StreamSelect software.

1. Install or verify the following hardware configuration. Please refer to the installation manuals for each component.
   - Agilent 1260/1290 Infinity Series Liquid Chromatograph module
   - Agilent 1290 Infinity LC Injector HTC/HTS
   - Agilent 6400 Series Triple Quad LC/MS
   - Agilent Stream Selection Valve
   - G6075A StreamSelect bench (optional)
   - G3215A Mass Spec Bench (optional)
2. Make all necessary electrical connections.
3. Set up the computer and verify that your computer hardware meets the minimum requirements to install and operate as described in the installation instructions for those products.
   - Windows 7 (64-bit)
4. Install the following Agilent software, according to the installation instruction for each product.
   - MassHunter Data Acquisition B.07.02 or higher

     Make sure you **Install HTC/HTS Driver** from the Data Acquisition installation welcome page, and that you configure the **HTC/HTS Autosampler** in the Data Acquisition Instrument Configuration program.
   - MassHunter Qualitative Analysis B.07.01 SP1 or higher
   - MassHunter Quantitative Analysis B.07.00 or higher
5. Verify that the MassHunter Workstation is operational.

   A new installation or upgrade of Data Acquisition writes a default **atunes.tune.xml**. Run Autotune, or replace **atunes.tune.xml** with a previously generated tune file in the proper tune folder.

Step 1. Install MassHunter StreamSelect software

1. Start Windows.
   - Log in to an account that has administrator privileges.
   - Verify that the MassHunter Data Acquisition program and all MassHunter engines are *not* running.
2. Insert the MassHunter StreamSelect System setup disk into the disk drive.
3. Install MassHunter StreamSelect Software:
   a. Click **Install MassHunter StreamSelect Software**.
   b. When the Agilent MassHunter StreamSelect Setup dialog box appears, click **Next** to continue.
   c. Read the license agreement. Mark the check box to accept its terms and continue the setup program. Click **Next** to continue.
   d. Click **Install**. Wait for the installation to complete.
   e. Click **Finish** when the MassHunter StreamSelect installation is complete.

Step 2. Install the StreamSelect LC/MS System Hardware

NOTE APG Remote is *not* used for any MassHunter StreamSelect installation.

1 For systems *without* online cleanup:

a Follow the layout shown in the Figure 1 (2-stream system) or Figure 2 (3-stream or 4-stream systems):

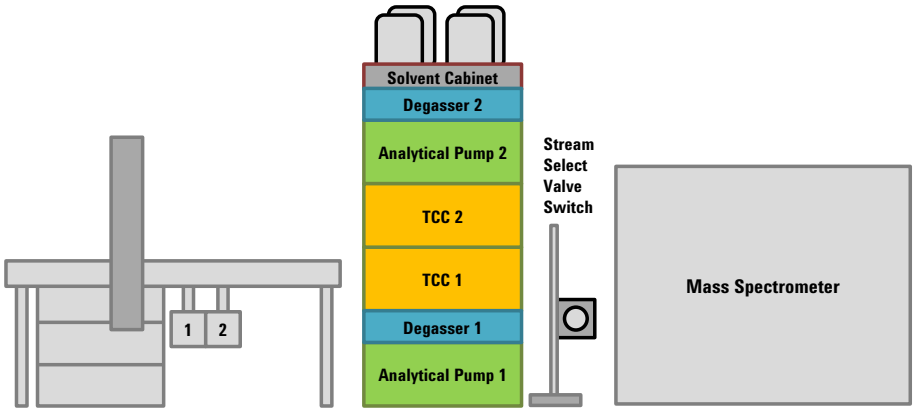


Figure 1 Recommended layout for 2-stream systems *without* online sample cleanup

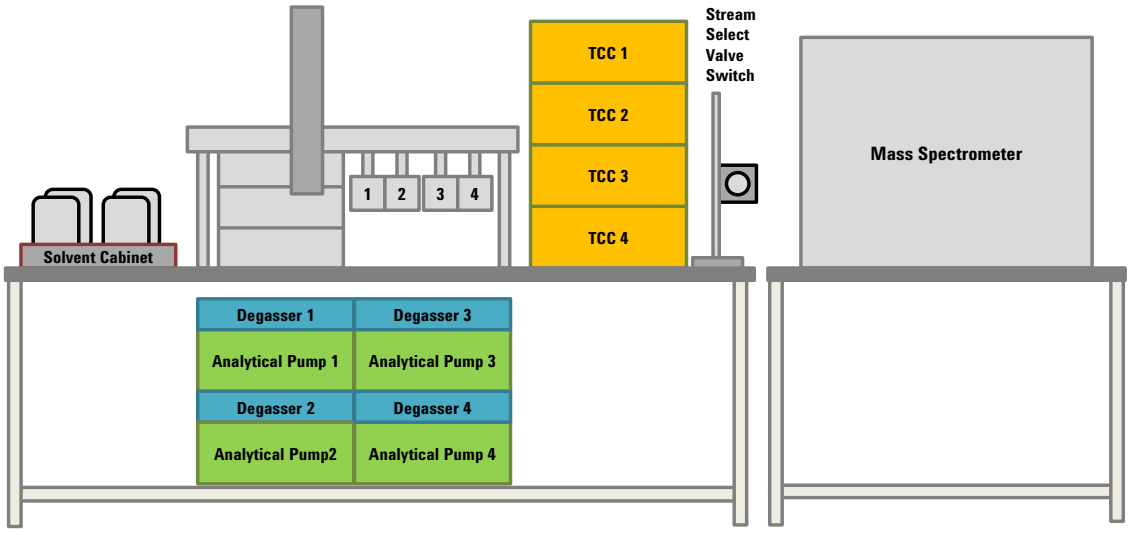


Figure 2 Recommended layout for 3-stream and 4-stream systems *without* online sample cleanup

b Make the CAN and LAN connections as shown in Figure 3:

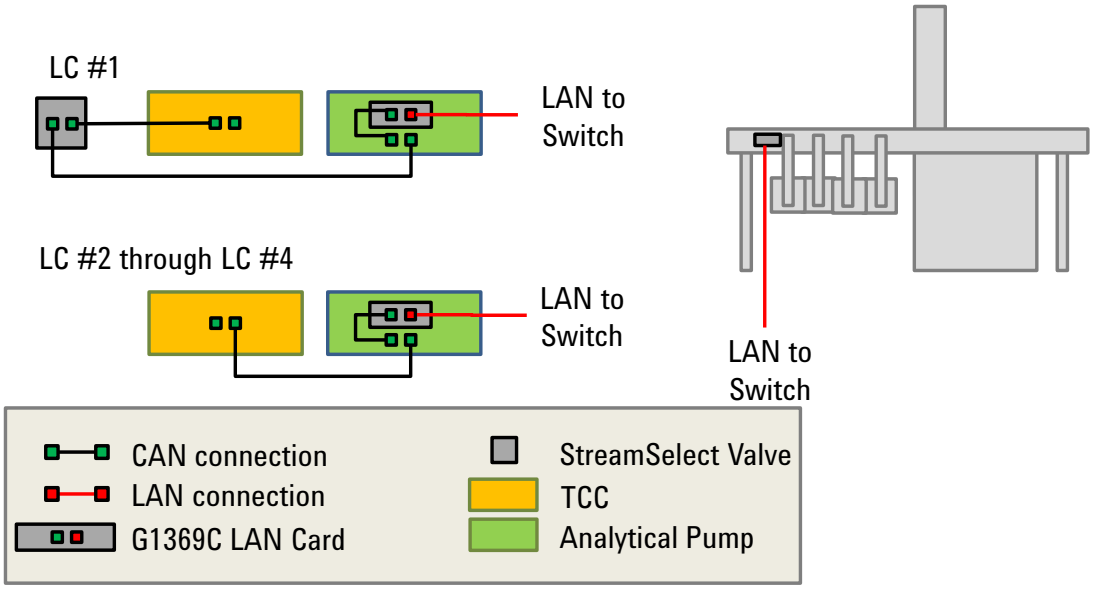


Figure 3 Recommended wiring for systems without online sample cleanup. For 1290 modules that use an integrated LAN connection (such as a 1290 Binary Pump), no connection is needed from the LAN card to the module.

c Make the LC connections as shown in Figure 4.

StreamSelect valve assignments can be changed in the Instrument Configuration window. See "Step 4. Configure the Instrument" on page 16.

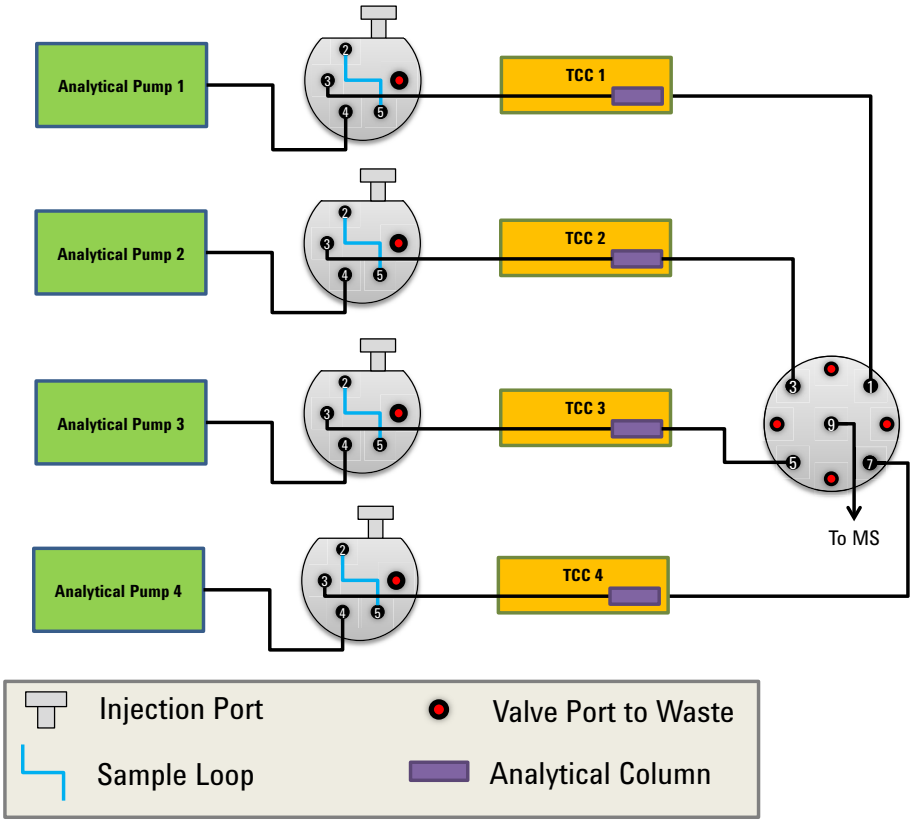


Figure 4 LC Flow Path diagram for systems *without* online sample cleanup

2 For systems *with* online cleanup:

a Follow the layout shown in Figure 5 (2-stream) or Figure 6 (3-stream or 4-stream):

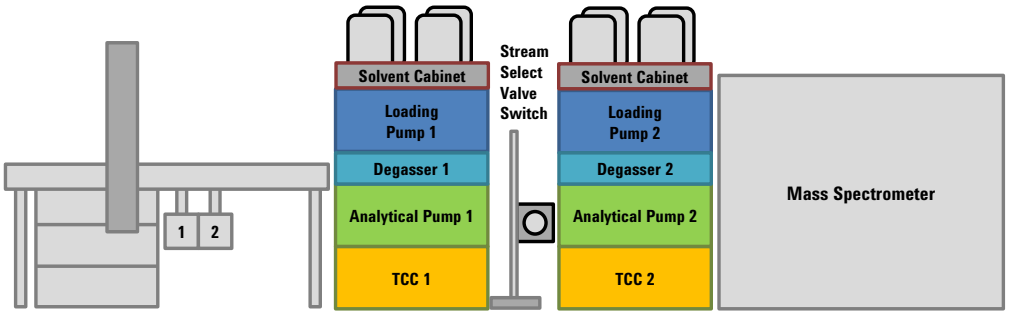


Figure 5 Recommended layout for 2-stream systems *with* online sample cleanup

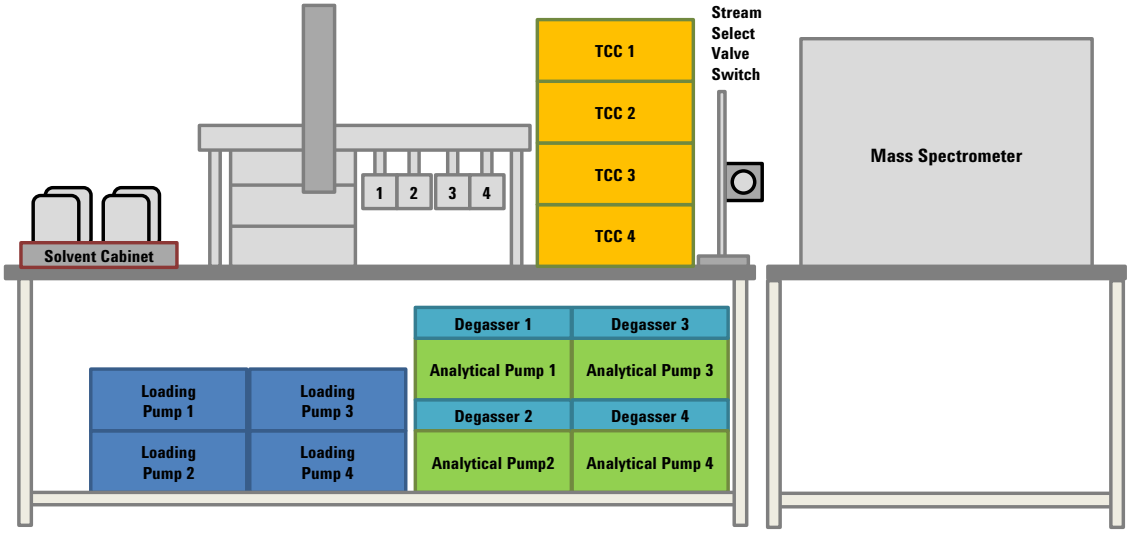


Figure 6 Recommended layout for 3-stream and 4-stream systems *with* online sample cleanup

b Make the CAN and LAN connections as shown in Figure 7:

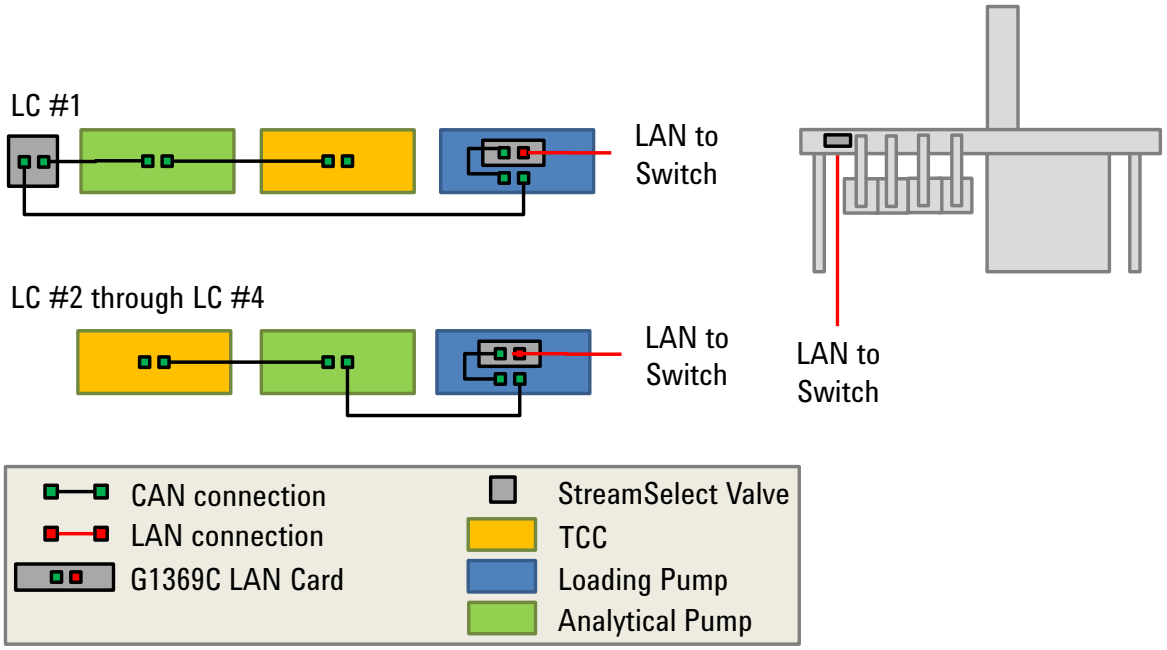


Figure 7 Recommended cable connection for systems *with* online sample cleanup. For 1290 modules that use an integrated LAN connection (such as a 1290 Binary Pump), no connection is needed from the LAN card to the module.

c Make the LC connections as shown in Figure 8.

StreamSelect valve assignments can be changed in the Instrument Configuration window. See "Step 4. Configure the Instrument" on page 16.

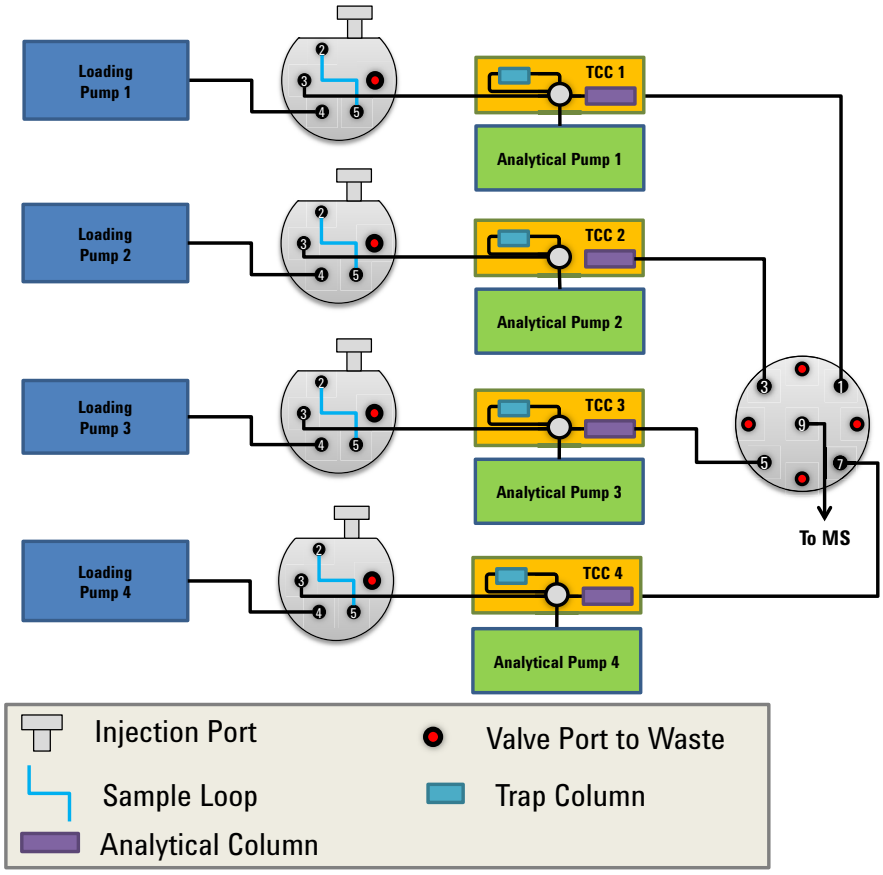


Figure 8 Recommended plumbing for systems *with* online sample cleanup

d Make the TCC connections as shown in Figure 9.

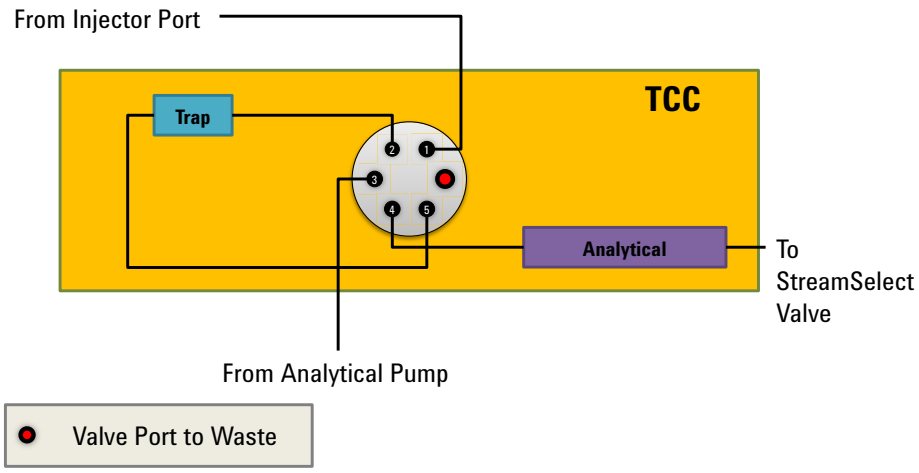
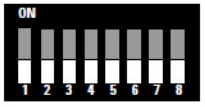


Figure 9 Detailed TCC diagram for systems *with* online sample cleanup

Step 3. Configure the Agilent G1369C LAN Interface Cards

Each LC stream must contain a G1369C LAN card. Each LAN card must be configured with a unique IP address. To change the IP address of the LAN card, do the following steps.

1 Verify that the Initialization Mode is set to “Using Default” using the configuration switches.



SW 4	SW 5	SW 6	SW 7	SW 8	Init Mode
OFF	OFF	OFF	OFF	OFF	Bootp
OFF	OFF	ON	OFF	OFF	Bootp & Store
OFF	ON	OFF	OFF	OFF	Using Stored
OFF	ON	ON	OFF	OFF	Using Default
ON	OFF	OFF	OFF	OFF	DHCP

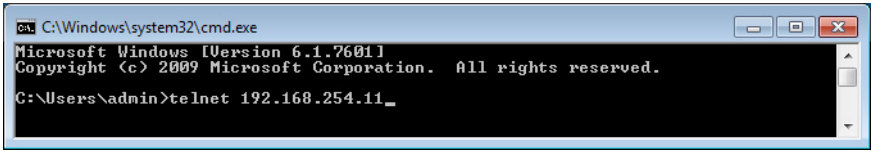
NOTE The configuration switches are set correctly for LAN cards that are ordered from Agilent as an option with the pump. If your LAN card was ordered separately, then the card is shipped with all switches in the OFF position.

2 Set the IP address of the card:

a With the LAN card installed and the device turned on, open a command prompt: Click the Windows Start button, type `cmd` in the **Search programs and files** box and press **Enter**.

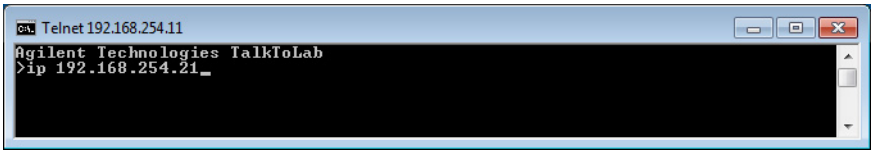
b To start a telnet session, type the following and press **Enter**:

```
telnet 192.168.254.11
```

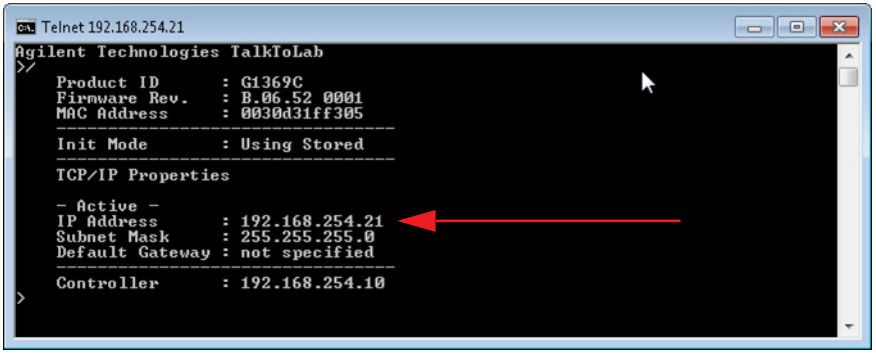


c To change the IP address, to 192.168.254.21 for example, type the following and press **Enter**:

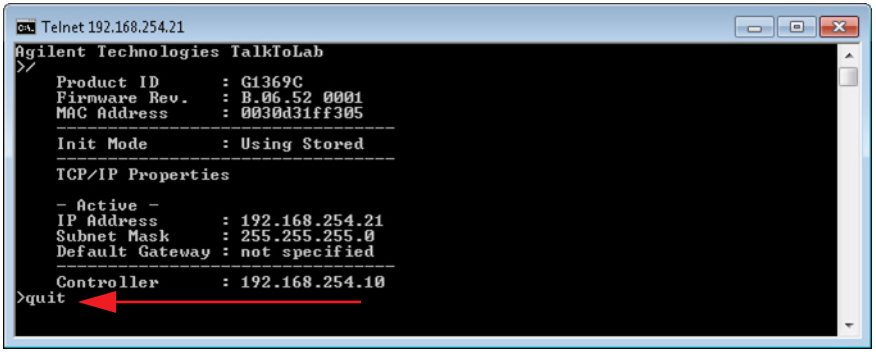
```
ip 192.168.254.21
```



d To verify the change, type `/` and press **Enter**.

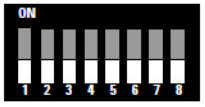


e To save the changes and close the Telnet session, type `quit` and press **Enter**.



3 Turn off the module with the LAN card installed and remove the LAN card.

4 Change the Configuration Switches to enable the **Using Stored** Initialization Mode.



SW 4	SW 5	SW 6	SW 7	SW 8	Init Mode
OFF	OFF	OFF	OFF	OFF	Bootp
OFF	OFF	ON	OFF	OFF	Bootp & Store
OFF	ON	OFF	OFF	OFF	Using Stored
OFF	ON	ON	OFF	OFF	Using Default
ON	OFF	OFF	OFF	OFF	DHCP

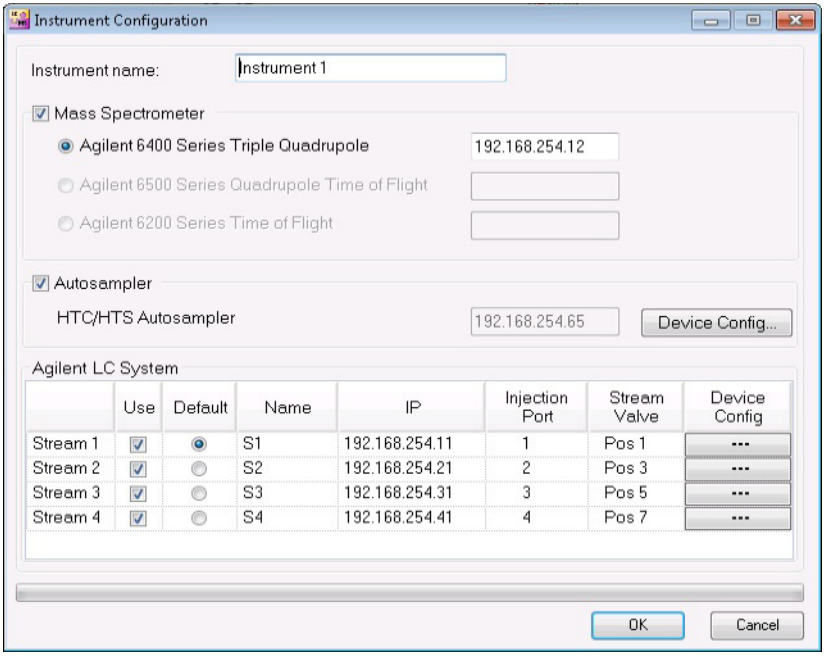
5 Put the LAN card back in the instrument module and turn on the LC stack.

See *Agilent 1369C LAN Interface Card User Manual (p/n G1369-90002)* for more information.

Step 4. Configure the Instrument

1 Click **Instrument Configuration** on the Windows Start menu or desktop.

2 Configure the instrument on the Instrument Configuration window.



a You can optionally change the **Instrument name** or accept the default name of **Instrument 1**.

b Mark the appropriate **Stream** check boxes to enable MassHunter StreamSelect operation.

c You can optionally change the **Stream Names** or accept the default names.

d Make sure the Stream IP addresses are unique. See "Step 3. Configure the Agilent G1369C LAN Interface Cards" on page 13.

3 When you finish instrument configuration, click **OK** to close the Instrument Configuration window.

Setting Up for Analysis

To tune the system

1 Start MassHunter StreamSelect.
2 In the **Tune** context, run an Autotune.

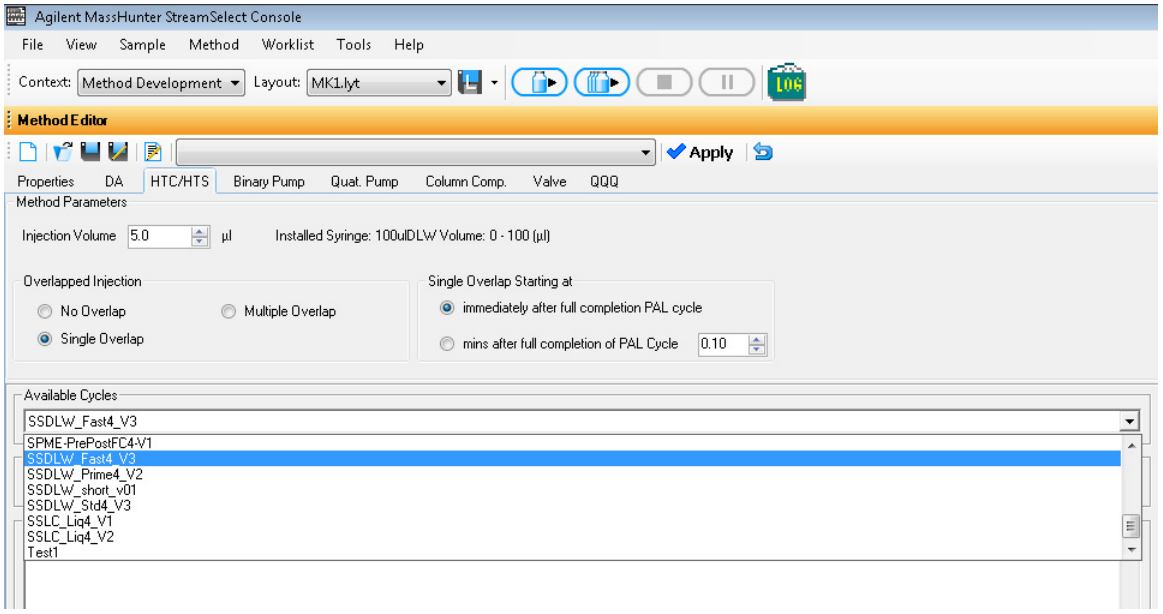
Refer to the online Help for more information about Autotune.

To develop an analytical method using MassHunter StreamSelect

By default, the software uses Stream #1. To switch to a different stream, see step 10.

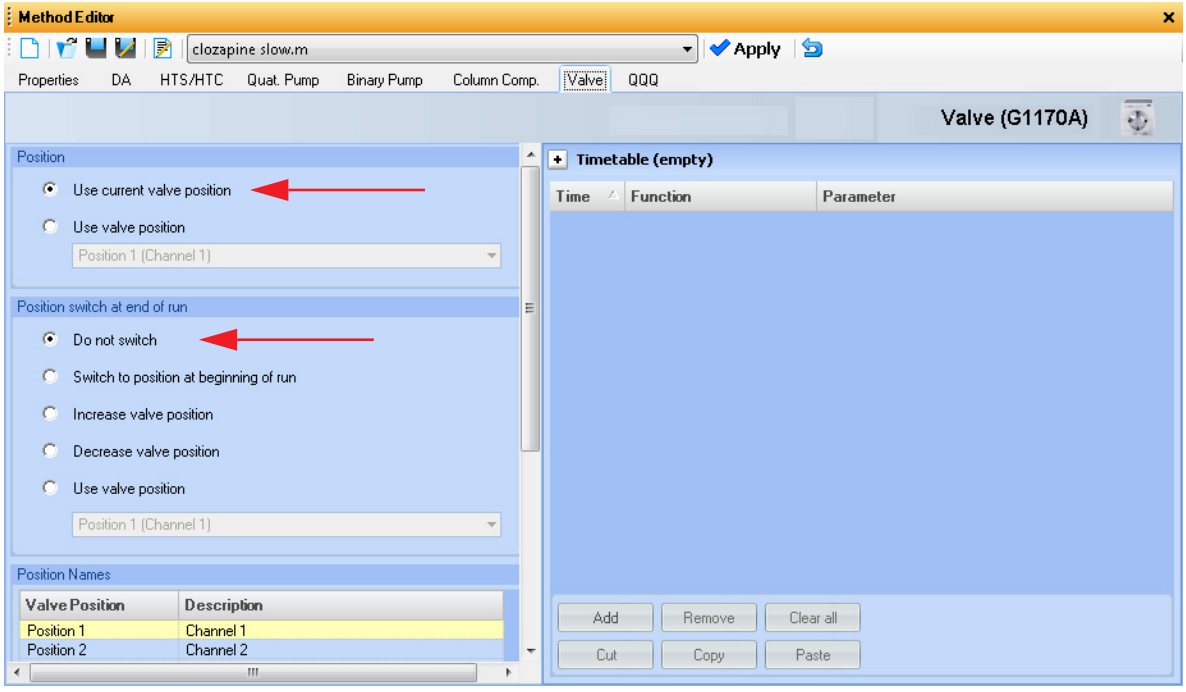
For more information on setting Acquisition method parameters, see the MassHunter Workstation Data Acquisition *online Help*.

1 Start MassHunter StreamSelect.
2 In the toolbar, make sure **Context** is set to **Method Development**.
3 In **HTC/HTS** tab, from the list of **Available Cycles**, select a StreamSelect cycle. StreamSelect cycles begin with “SSDLW”.
4 If needed, make changes to the cycle parameters.
5 Click **OK**.
6 Save the method if needed.

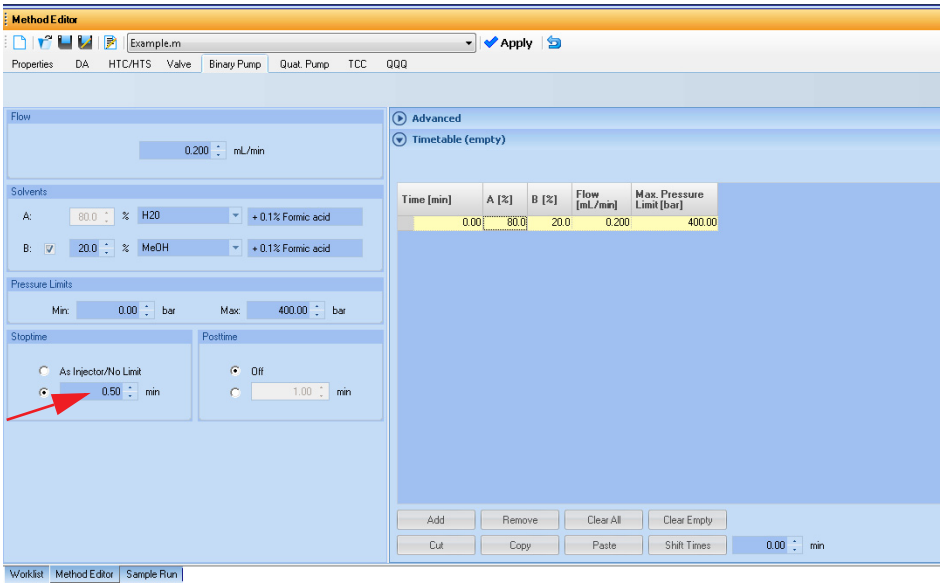

Agilent MassHunter StreamSelect Console
File View Sample Method Worklist Tools Help
Context: Method Development Layout: MK1.lyt
Method Editor
Apply
Properties DA HTC/HTS Binary Pump Quat. Pump Column Comp. Valve QQQ
Method Parameters
Injection Volume 5.0 µl Installed Syringe: 100ulDLW Volume: 0 - 100 (µl)
Overlapped Injection
No Overlap Multiple Overlap
Single Overlap
Single Overlap Starting at
immediately after full completion PAL cycle
mins after full completion of PAL Cycle 0.10
Available Cycles
SSDLW_Fast4_V3
SPME-PrePostFC4-V1
SSDLW_Fast4_V3
SSDLW_Prime4_V2
SSDLW_short_v01
SSDLW_Std4_V3
SSLC_Liq4_V1
SSLC_Liq4_V2
Test1

7 Click the **Valve** tab in the Method Editor window.

- Under **Position**, select **Use current valve position**. This setting is required so that MassHunter StreamSelect can control this valve properly.
- Under **Position switch at end of run**, click **Do not switch**.

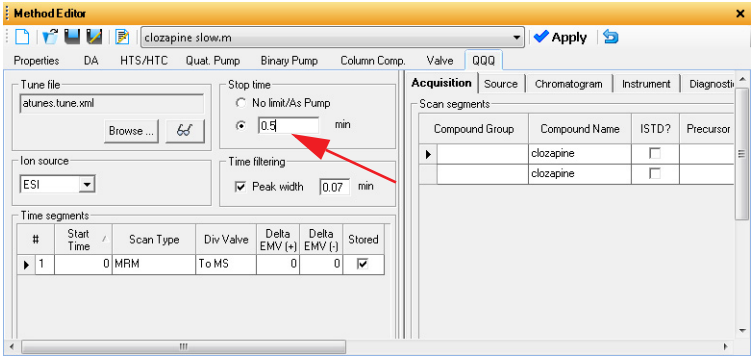


8 Click the **Binary Pump** tab in the Method Editor window.



a Specify a **Stoptime** for the pump as shown in the example above.

b Click the **QQQ** tab and set the same **Stoptime** for the mass spectrometer. These stop times must match.



c Set the **Stoptime** for all other components to the default value of **As Injector/No Limit**.

9 Run the method for the sample of interest.

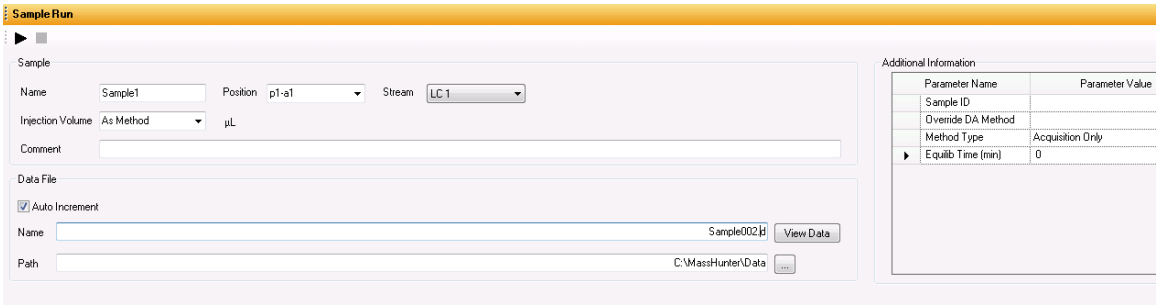
   a Modify the parameters if necessary.

   b Save the method.

10 Confirm the method on any other stream:

   a Make injections on each stream to confirm that the method works on each stream.

      To make single injections in the Method Development context, in the Sample Run window, select the appropriate **Stream**.



   b Run the method for the sample of interest.

   c Modify the parameters if necessary and save the method.

If you create a worklist in the Method Development context, you can specify in the **Stream** column the stream to use.

To create a MassHunter StreamSelect profile

To simplify daily MassHunter StreamSelect operation, you can create MassHunter StreamSelect profiles for each type of analysis done in your lab. MassHunter StreamSelect profiles are based on representative data collected.

1 For **Context**, select **Profile Editor**.
2 Click the appropriate icon on the left side of the Profile Editor to display the view of interest.

3 Refer to the *online Help* to set system parameters, and to configure calibrator maps and data file naming convention.
4 Click the **Save** or **Save as** button on the toolbar to save the configuration profile.

To submit batches for analyses, see the StreamSelect *Quick Start Guide* or the StreamSelect Console online Help.

Quick Reference to Starting Up MassHunter StreamSelect Components

To start MassHunter StreamSelect Console

- Click **StreamSelect** on the Windows Start menu or desktop. From the Stream Console, you can:
  - Submit batches for analysis.
  - View completed batches.
  - Develop methods.
  - Create profiles.

To start MassHunter StreamSelect Instrument Configuration

- Click **Instrument Configuration** on the Windows Start menu or desktop.

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In this Book

The *Setup Guide* describes how to install and configure the StreamSelect LC/MS System.

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