



# AriaMx Real-Time PCR System

G8830A

## Setup and User Guide

Version C0, June 2015

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procedures.**



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## In this Guide...

This document describes how to program and use the Agilent AriaMx Real-Time PCR System.

### **1 Before You Begin**

This chapter contains information for you to read and understand before you start setting up the instrument.

### **2 Installing and Setting Up the Instrument**

This chapter contains instructions for installing and setting up the AriaMx instrument.

### **3 Installation of the AriaMx Software**

This chapter contains installation instructions for installing the AriaMx software on your PC.

### **4 Running Experiments**

This chapter contains instructions on preparing and running experiments and managing experiment files on the instrument.

### **5 Troubleshooting, Maintenance, and Updates**

This chapter contains instructions for maintaining the instrument and uploading software updates.

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This chapter contains information for you to read and understand before you start setting up the instrument.



## Overview of the AriaMx Real-Time PCR System

The AriaMx Real-Time PCR System is a fully integrated quantitative PCR amplification, detection, and data analysis system. The system design combines a state-of-the-art thermal cycler, an advanced optical system with an LED excitation source, and complete data analysis software. The instrument can hold up to six optics modules, and the scanning optics design delivers optimal separation between the dyes and between samples. The instrument provides a closed-tube PCR detection format that can be used with a variety of fluorescence detection chemistries including SYBR® Green and EvaGreen dyes as well as fluorogenic probe systems including TaqMan probes.

## Materials provided with the AriaMx Real-Time PCR System

**Table 1** Materials provided

| <b>Materials provided</b>  | <b>Quantity</b>                                  |
|----------------------------|--|
| AriaMx instrument          | 1  |
| Certificate of Conformance | 1  |
| AriaMx installation poster | 1  |
| Power cord                 | 1  |
| Optical modules            | Up to 6 optical modules, as selected by the user |
| AriaMx software CD         | 1  |

The AriaMx instrument, the Certificate of Conformance, and the AriaMx installation poster are all shipped together in the same shipping container. The power cord, optical modules, and software CD are each shipped in their own packaging.

**Table 2** Materials offered as options at time of purchase

| <b>Options</b>               | <b>Quantity</b> |
|------------------------------|-----------------|
| Electronic tracking software | 1 seat          |
| Notebook PC                  | 1               |

## Hardware specifications

**Table 3** Hardware specifications for the AriaMx Real-Time PCR System

| Feature                          | Specification  |
|----------------------------------|--|
| Excitation source                | Eight dye-specific LEDs per optical module   |
| Detection                        | Eight photodiodes per optical module   |
| Dyes                             | ROX, FAM, HEX, CY5, CY3<br>Six slots, swappable cartridges, no reference channel needed  |
| Electrical power (input)         | 100–240 VAC, 50/60 Hz, 1100VA  |
| Thermal system                   | Peltier-based, 96-well block   |
| Thermal system temperature range | 25.0–99.9°C<br>Max Heating: >6°C/sec<br>Max Cooling: >2.5°C/sec<br>Accuracy: ±0.2°C or better at typical annealing, amplification, and denaturation temperatures   |
| Cycling speeds                   | 40 cycle protocol in 43 minutes  |
| Operating environment            | 20–30°C (65–95°F); 20–80% non-condensing humidity; maximum altitude of 2000 m  |
| Weight                           | 50 lbs (23 kg)   |
| Dimensions                       | 19.7" W × 18.1" D × 16.5" H (50 cm × 46cm × 42cm)  |
| On board quality checks          | Instrument QC checks:<br>All checks: 30 minutes<br>Selected checks: 10–30 minutes<br><br>Calibration:<br>1-minute background calibration<br><br>Data loss prevention:<br>Data captured from all channels on each scan<br>Ability to store up to 5 GB on the instrument |
| Warranty                         | Two-year warranty  |
| Plastic consumables              | Low-profile 0.2-ml tubes, strip tubes, and 96-well plates<br>See “ <a href="#">Recommended plasticware</a> ” on page 12 for part numbers   |

## Recommended plasticware

Table [Table 4](#) lists the part numbers of Agilent plates, tubes, and other plastic consumables for use in the AriaMx instrument.

**Table 4** QPCR plasticware for use in the AriaMx instrument

| Agilent Part Number | Description   |
|---------------------|---|
| 401490              | 96-well plate, fully skirted, low profile                                     |
| 401491              | 96-well plate, rigid, fully skirted, low profile                              |
| 401494              | 96-well plate, non-skirted, low profile                                       |
| 401493              | 8x strip tubes, without caps, low profile, 120 strips (10 packs of 12 strips) |
| 401425              | 8x strip tube optical caps, 120 strips (10 packs of 12 strips)                |
| 401427              | 8x strip tube optical caps, 60 strips (5 packs of 12 strips)                  |
| 401492              | Adhesive seal for 96-well plates, 50-pack                                     |

## Safety precautions

### Electrical

Standard electrical safety precautions should be applied, including the following:

- Always put the instrument in a location where, if needed, the power supply can be immediately disconnected.
- Proper voltage must be supplied before you turn on the instrument for the first time.
- The device must be connected to a grounded socket. Do not operate the instrument from a power outlet that has no ground connection.
- Do not touch any switches or outlets with wet hands.
- Turn off the instrument before you disconnect the power cord.
- Unplug the instrument before you clean any major liquid spills and before you service any of the electrical or internal components.

- Do not connect the instrument to the same power strip as other high power-draw appliances (e.g. refrigerators and centrifuges).
- *Do not service the electrical components unless you are qualified to do so.*

### **Fluids and Reagents**

- Fill reaction vessels outside the instrument so that no fluids penetrate the instrument.
- Never cycle or incubate explosive, flammable and reactive substances in the instrument.
- You must observe the relevant safety regulations when handling pathogenic material, radioactive substances or other substances hazardous to health.
- Do not submerge the instrument in any liquid.

### **Danger of Burns**

- *Do not touch the thermal block, inner side of heated lid and reaction vessels.* These areas quickly attain temperatures of greater than 50°C. Keep the heated lid closed until temperatures of 30°C or lower are reached.
- Do not use any materials (plates, sealings, foils, mats) which are not sufficiently temperature-stable (up to 120°C).

### **Operating Environment**

- The ventilation slots of the device must remain free to vent at all times. Leave at least 10 cm of space around the instrument.
- Keep the ambient temperature between 20°C and 30°C with humidity levels between 20% and 80% non-condensing.
- Do not operate the instrument in a hazardous or potentially explosive environment.

## 1 Before You Begin

### Safety precautions

#### Equipment Ratings

- Pollution degree 2
- Installation category II
- Altitude 2000 m
- Humidity 20 to 80%, non-condensing
- Electrical supply 100-240 VAC, 50/60 Hz, 1100VA
- Temperature 20°C to 30°C
- For Indoor Use Only

#### Electrostatic Discharge

The instrument is static sensitive. Electrostatic discharges greater than 8000 volts may interfere with the normal operation of the USB ports on the instrument. Handling precautions are required when working in high static environments. Wear a grounded wrist strap and take other antistatic precautions prior to making contact with the device in high static environments. ESD STM5.1-1998 Class 3B.

#### Safety Symbols

The electrical/safety symbols described below may be displayed on the instrument.



## Consignes de sécurité

### Électrique

Les consignes relatives à la sécurité des installations électriques standard doivent être respectées, notamment :

- Placez toujours l'appareil dans un emplacement où, si besoin est, l'alimentation peut être débranchée immédiatement.
- Une tension appropriée doit être appliquée avant la première mise sous tension de l'instrument.
- L'appareil doit être branché à une prise de courant mise à la terre. N'utilisez jamais l'appareil à partir d'une prise de courant sans mise à la terre.
- Ne touchez pas les commutateurs ou les prises avec les mains mouillées.
- Éteignez l'appareil avant de débrancher le câble d'alimentation.
- Débranchez l'appareil avant de nettoyer tout déversement de liquide important et avant de réparer l'un des composants électrique ou interne.
- Ne branchez pas l'instrument à la même multiprise que d'autres appareils à haute consommation électrique (p. ex., réfrigérateurs et centrifugeuses).
- *Ne tenter pas de réparer un composant électrique, sauf si vous êtes qualifié pour le faire.*

### Fluides et réactifs

- Remplissez les récipients de réaction en dehors de l'instrument afin qu'aucun fluide n'y pénètre.
- Ne soumettez aucune substance explosive, inflammable ou réactive à un cycle ou à une incubation dans l'instrument.
- Vous devez observer les règles de sécurité en vigueur lorsque vous manipulez des matières pathogènes, des substances radioactives ou toute autre substance dangereuse pour la santé.
- Ne pas immerger l'instrument dans du liquide.

### **Danger de brûlures**

- *Ne touchez pas le bloc thermique, la partie interne du capot chauffé ou les récipients de réaction.* Ces zones atteignent rapidement des températures supérieures à 50 °C. Maintenez le capot chauffé fermé jusqu'à ce que la température soit inférieure ou égale à 30 °C.
- N'utilisez aucun matériel (plaques, joints, feuilles, feuillets) insuffisamment stables en température (jusqu'à 120 °C).

### **Environnement d'exploitation**

- Les fentes de ventilation de l'appareil ne doivent être obstruées à aucun moment. Laissez un espace d'au moins 10 cm autour de l'instrument.
- Maintenez la température ambiante entre 20 °C et 30 °C, avec un taux d'humidité compris entre 20 % et 80 % sans condensation.
- N'utilisez pas l'instrument dans un environnement dangereux ou potentiellement explosif.

### **Cote attribuée à l'appareil**

- Degré de pollution 2
- Catégorie d'installation 2
- Altitude 2 000 m
- Humidité comprise entre 20 % et 80 % sans condensation
- Alimentation électrique 100-240 V c.a., 50/60 Hz, 1100 VA
- Température comprise entre 20 °C et 30 °C
- Pour utilisation en intérieur uniquement

### **Décharges électrostatiques**

L'appareil est sensible à l'électricité statique. Les décharges électrostatiques supérieures à 8 000 volts peuvent interférer avec le fonctionnement normal des ports USB de l'appareil. Des précautions de manipulation doivent être observées pour toute utilisation dans des environnements soumis à de fortes charges statiques. Portez un bracelet de mise à la terre et prenez toutes les précautions antistatiques nécessaires avant d'entrer en contact avec l'appareil dans des environnements soumis à de fortes charges statiques. ESD STM5.1-1998 Classe 3B.



## Symboles de sécurité

Il se peut que les symboles électriques/de sécurité décrits ci-dessous s'affichent sur l'instrument.



Sous tension



Hors tension



Attention



Attention, surfaces chaudes

## Indicator LED light

On the front of the instrument (top right corner) is a status indicator LED. [Table 5](#) summarizes the status codes for this LED light.

**Table 5** Appearance of the status indicator LED

| Appearance     | Instrument Status  |
|----------------|--|
| Off            | The instrument is idle.  |
| Blinking green | The instrument is running.   |
| Solid green    | The instrument is paused.  |
| Blinking red   | The instrument has detected an error. Check the display for an error message containing further details. |

## Agilent Technical Support

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| <b>Americas</b>         |                                       |                                     |
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**All other countries**

Find local contact information at <http://www.agilent.com/genomics/contactus>



## 2 Installing and Setting Up the Instrument

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This chapter contains instructions for installing and setting up the AriaMx instrument.



## Installing the AriaMx Instrument

### Step 1. Select a location for the instrument

- Locate a solid, flat clean surface for the instrument. Make sure that:
  - The instrument can stand completely stable.
  - The rear air slots will not be covered.
  - The unit always has at least 10 cm (approximately 4 inches) to the next wall or neighboring instrument.
  - The temperature (normal ambient) is between 20°C and 30°C with humidity levels between 20% and 80% non-condensing.
  - The atmosphere is not explosive.

### Step 2. Unpack the shipping containers

#### NOTE

The AriaMx instrument is shipped in two separate containers. The small container holds the power cord. The large container holds the instrument and accessory tray.

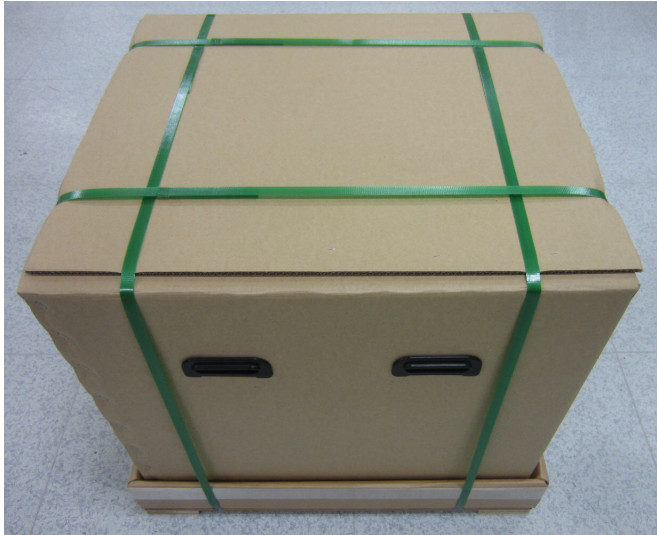
Any optical modules that you ordered with the instrument are each packed and shipped separately in their own box.

The software CD is also packed and shipped separately.

- 1 Open the small shipping container that holds the power cord. Remove the power cord and set it aside for now.
- 2 Make sure that the large shipping container is in the upright position (Figure 1), then cut the four plastic straps that hold the container together.

#### CAUTION

Retain the large shipping container and all packaging materials inside. In the event that you need to return the instrument for service, you must ship it in the original container to maintain warranty protection.



**Figure 1** AriaMx instrument shipping container

**3** Open the top flaps of the large container.

Inside the container is an accessory tray (see [Figure 2](#)), which contains the Certificate of Conformance and the installation poster.

## 2 Installing and Setting Up the Instrument

### Step 2. Unpack the shipping containers



**Figure 2** Opened shipping container with accessory tray sitting on top

- 4** Remove the accessory tray. Unpack the installation poster from the accessory tray and use it to guide you through the remainder of the unpacking process.
- 5** Remove the foam support that sits on top of the instrument in the shipping container.
- 6** Grip a handle on each side of the shipping container and lift up to remove the box sleeve that surrounds the instrument.

The instrument sits on the base of the shipping container, as shown in [Figure 3](#).



**Figure 3** Instrument on shipping container base, with box sleeve removed

- 7 Remove the plastic wrapping from the instrument.
- 8 Lift the instrument off of the shipping container base and set it down on its selected location (see [“Step 1. Select a location for the instrument”](#)).

*Agilent recommends that two people lift the instrument together.*

### Step 3. Install the optical modules

- 1 Open the instrument door by lifting up on the handle on the top of the instrument. Lift the door all the way up and back.
- 2 Remove the piece of foam and then remove the strip of cardboard from around the thermal block assembly (see [Figure 4](#)). *Remember to retain these pieces, along with all other packaging materials, in the event that you need to ship the instrument for service.*

The optical module housing carrier is positioned to the left of the thermal block assembly.

## 2 Installing and Setting Up the Instrument

### Step 3. Install the optical modules



**Figure 4** Foam insert (left) and underlying cardboard strip (right).

- 3 Slide the optical module housing carrier to the right until it is centered in the opening of the instrument door (as shown in [Figure 5](#)). Use the indentation on the top of the carrier to help slide it.



**Figure 5** Optical module housing carrier, centered in the instrument door opening

- 4 Open the lid on the optical module housing carrier.
  - a With your thumb and index finger, pinch together the two pieces of plastic in the indentation on the top of the carrier (see [Figure 6](#)).
  - b Lift the lid all the way back to reveal the six slots for the optical modules (see [Figure 7](#)).





**Figure 6** Opening of the optical module housing



**Figure 7** Slots for the optical modules

- 5 Open the boxes containing the optical modules. Remove the top piece of foam from each box ([Figure 8](#)) then remove the plastic bag containing the optical module.

## 2 Installing and Setting Up the Instrument

### Step 3. Install the optical modules



**Figure 8** Optical module shipping box – top piece of foam removed

- 6 Install the optical modules into the slots in the recommended configuration, as specified in [Table 6](#). For any optical modules that you do not have, leave that slot empty.

**Table 6** Recommended configuration for optical modules

| Slot position            | Optical modules |
|--------------------------|-----------------|
| Slot 1 (right-most slot) | FAM             |
| Slot 2                   | ROX             |
| Slot 3                   | HEX             |
| Slot 4                   | CY5             |
| Slot 5                   | CY3             |
| Slot 6 (left-most slot)  | empty           |

To install each optical module:

- a Open the plastic bag and remove the optical module.
- b Peel off the plastic film from the edge of the optical module (see [Figure 9](#)). Once the film is removed, do not touch the exposed edge.
- c Put the optical module in the appropriate slot in the optical module housing. The correct orientation for the optical module is label side up with the Agilent spark closer to the front of the instrument (see [Figure 10](#)).



**Figure 9** Removal of plastic film from optical module



**Figure 10** Installed optical modules

- 7 Lower the lid on the optical module housing until it clicks shut.  
When you turn on the instrument for the first time, it will prompt you to calibrate the background for the optical modules. Calibration is described in “[Step 1. Turn on the instrument and calibrate the background for the optical modules](#)” on page 32.

## 2 Installing and Setting Up the Instrument

### Step 4. Clean the thermal block

#### Step 4. Clean the thermal block

With the instrument door still open, clean the outside and inside surfaces of the thermal block.

- 1 Lift the lid of the thermal block by pulling forward on the handle of the lid and then lifting the lid up and away from the thermal block.
- 2 Using an aerosol can of compressed air, clean out the wells of the thermal block. Hold the can 3–4 inches away from the thermal block as you press the trigger.
- 3 Moisten a lint-free cleansing tissue with dH<sub>2</sub>O, and gently wipe down the thermal block and the underside of the lid. Then, close the lid of the thermal block and wipe down the top of the lid.
- 4 Close the instrument door.

#### Step 5. Connect the instrument to a power supply

You must connect the instrument to a grounded AC outlet.

- 1 Plug the power cord into the power connector at the rear of the instrument.
- 2 Connect the cable plug to the outlet.

#### Step 6. Connect a keyboard or mouse to the instrument (optional)

If desired, you can connect a keyboard or mouse to the instrument via the USB ports on the front and back of the instrument.

- Plug the USB cable of the device into a USB port on the instrument.  
*Multimedia keyboards are not supported.*

## Step 7. Connect the instrument to a network or directly to a PC

Connecting your instrument to a PC, either directly or through a network, allows you to remotely retrieve data from the instrument to your PC through the AriaMx PC software. If you do not connect your instrument to a PC, you must transfer post-run experiment data by copying it from the instrument to a USB drive (FAT format), and then from the USB drive to your PC.

### To connect the instrument to a network

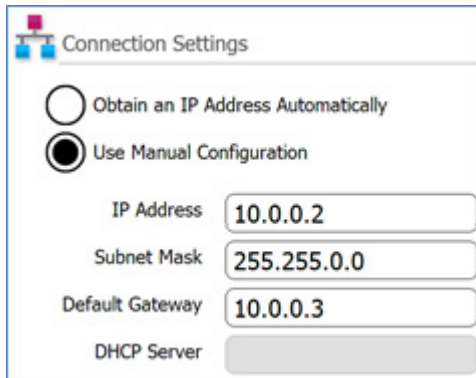
- 1 Plug one end of an ethernet cable into the ethernet port on the back of the instrument. Use a standard Cat 6 straight/crossover ethernet cable.
- 2 Plug the other end of the cable into a network port.

### To connect the instrument directly to a PC

- 1 Plug one end of an ethernet cable into the ethernet port on the back of the instrument. Use a standard Cat 6 straight/crossover ethernet cable.
- 2 Plug the other end of the cable into the PC.
- 3 After you turn on the AriaMx instrument, set a static IP address, subnet mask, and default gateway on the instrument using the instructions below. Note that you will need to wait to complete these steps until after you complete “[Step 1. Turn on the instrument and calibrate the background for the optical modules](#)” on page 32.
  - a On the Home screen of the AriaMx touchscreen, press **Settings**.
  - b Press **Connection Settings**. If you see an error message that no network connection is detected, press **OK** to close the error message.
  - c On the Connection Settings screen, select **Use Manual Configuration**.
  - d In the IP Address, Subnet Mask, and Default Gateway fields, enter the values shown in [Figure 11](#). Press **OK**.

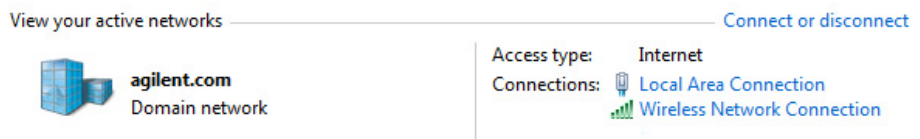
## 2 Installing and Setting Up the Instrument

Step 7. Connect the instrument to a network or directly to a PC



**Figure 11** Connection Settings

- 4 On the PC, set a static IP address, subnet mask, and default gateway using the instructions below.
  - a Open the Control Panel to the Network and Sharing Center.
  - b Under **View your active networks**, click **Local Area Connection** (Figure 12). Note that the appearance of the Network and Sharing Center screen may differ slightly from that shown in Figure 12 depending on your current network setup.

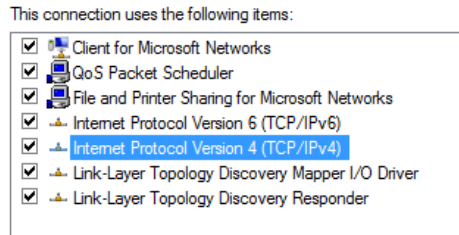


**Figure 12** Network and Sharing Center – View your active networks

The Local Area Connection Status dialog box opens.

- c In the Local Area Connection Status dialog box, click **Properties**.  
The Local Area Connection Properties dialog box opens
- d In the list of items under **This connection uses the following items**, double-click **Internet Protocol Version 4 (TCP/IPv4)** (Figure 13).

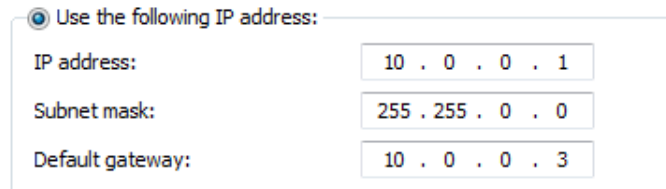
## Step 7. Connect the instrument to a network or directly to a PC



**Figure 13** Local Area Connection Properties dialog box – Internet Protocol Version 4

The Internet Protocol Version 4 (TCP/IPv4) Properties dialog box opens.

- e On the General tab of the dialog box, select **Use the following IP address** and set the IP address, subnet mask, and default gateway to the values shown in [Figure 14](#). Click **OK** to close the dialog box.



**Figure 14** Internet Protocol Version 4 dialog box – Use the following IP address

## Setting Up the AriaMx Instrument

### Step 1. Turn on the instrument and calibrate the background for the optical modules

- 1 Press the power button located near the bottom left corner on the front of the instrument.

The instrument performs a series of health checks to ensure basic hardware functionality. If the health checks reveal an instrument error, record the error and then perform a more detailed diagnostic check (see “[Step 3. Run a diagnostic check](#)” on page 34). The instrument performs the health checks each time it is powered on. When the tests are complete, the instrument touchscreen opens to the Home screen.

Anytime you install new optical modules, a message box opens prompting you to calibrate the background for the optical modules.

- 2 Press **OK** in the message box.

The Background Calibration screen opens.

- 3 Press **Calibrate**.

A message box opens instructing you to load a 96-well QPCR plate containing 20  $\mu$ l of dH<sub>2</sub>O or TE buffer in each well onto the thermal block.

- 4 Prepare the plate and load it into the thermal block. Close the instrument door and press **OK** in the message box.

See “[Load samples](#)” on page 72 for instructions on plate loading. See “[Recommended plasticware](#)” on page 12 for ordering information on 96-well plates.

The instrument runs the calibration. At the end of calibration, a message box opens on the touchscreen notifying you that the calibration was successful.

- 5 Click **OK** in the message box to close it.

The touchscreen returns to the Home screen. You are logged in to the *Guest* account.





**Figure 15** Touchscreen display – Home screen

The color touchscreen on the AriaMx instrument allows you to operate the instrument by touching the buttons on the screen. If a mouse has been connected to the instrument, you may select buttons by clicking. When software functions require data input from a keyboard, the touchscreen automatically displays a virtual keyboard. You can also type in data input using a USB-connected keyboard.

## Step 2. Set the instrument date and time

- 1 In the bottom right corner of the touchscreen, press the time and date this is currently displayed.
- 2 In the menu that opens, press **Change Date & Time**.  
The Date & Time Settings screen opens.
- 3 Use the fields to set the date and time to the correct values. Press the help icon for detailed instructions on setting the date and time on this screen.

## Step 3. Run a diagnostic check

- 1 On the Home screen of the touchscreen, press **Settings**.
- 2 Press **Instrument Diagnostic**.
- 3 Press **Run Diagnostics**.
- 4 Mark the check box at the top of the screen labeled **All Test**.
- 5 Press **Run**.

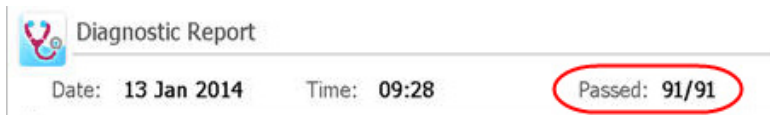
A message box opens prompting you to make sure that no plate is loaded on the thermal block.
- 6 Press **OK** to continue.

A dialog box opens displaying a schematic of the optical modules installed in the housing.
- 7 Mark the check boxes for all slots in the housing that contain an optical module. For empty slots, leave the check box clear. Press **OK**.

The instrument begins running the diagnostic check. The first set of tests is the user interaction tests.
- 8 During the user interaction tests, perform all actions and answer questions as prompted on the touchscreen.

After the user interaction tests, the instrument runs the diagnostic tests. No user input is required during this set of tests.

At the end of the diagnostic check, the touchscreen opens to the Diagnostic Report screen.



**Figure 16** Diagnostic report banner, with the test results circled in red

- 9 Check the diagnostic report. The banner at the top of the report lists the number of tests that passed out of the total number of test performed (see [Figure 16](#)).
  - If all tests passed, you can close the diagnostic report.
  - If any of the tests failed, contact Agilent Technical Support. See [page 18](#) for contact information.

## Logging In and Creating User Accounts

The AriaMx instrument offers individualized user accounts, allowing each AriaMx user to log in to the instrument with their own account and save experiments to their own user folder. Three different access levels are available for user accounts: Administrator, User, and Guest. Each level has specific user rights as described in [Table 7](#).

**Table 7** Access levels

| Access Level  | Functions allowed   |
|---------------|---|
| Guest         | <ul style="list-style-type: none"> <li>• Access rights to the Guest folder</li> </ul>   |
| User          | <ul style="list-style-type: none"> <li>• Access rights to the Guest and personal user folder</li> </ul>   |
| Administrator | <ul style="list-style-type: none"> <li>• Access rights to the Guest folder and all user folders</li> <li>• Creation and management of user accounts</li> <li>• Installation of instrument software updates</li> <li>• Access rights to the instrument diagnostic reports</li> </ul> |

Each time you turn on the instrument, you are automatically logged in to the *Guest* account.

### Step 1. Log in to the instrument using an Administrator account

- 1 From the Home screen of the touchscreen, press **User Login**.  
 Alternatively, from any screen of the touchscreen, press **Current User** at the bottom of the screen, then press **Open Login Page**.  
 The User Login screen opens.
- 2 In the User Name drop-down, select the user name for an account that has Administrator access level.  
 The instrument comes preloaded with a default Administrator account that you can select here.
- 3 In the Password field, type the password for the account.  
 The default password for the Administrator user name is ADMIN.
- 4 Press **Login**.

## 2 Installing and Setting Up the Instrument

### Step 2. Add user accounts

A message box opens confirming that you logged in to the instrument. Press **OK** to close the message box.

- 5 (Optional) Change the default password for the Administrator account.
  - a From the Home screen, press **Settings**.
  - b Press **User Management**.
  - c On the User Management screen, select the Administrator account and press **Edit**.
  - d In the **Password** and **Confirm Password** fields, type a new password for the account.
  - e Press **OK** to save the new password.

## Step 2. Add user accounts

- 1 From the Home screen, press **Settings**.
- 2 Press **User Management**.

The User Management screen opens listing the available user names and corresponding access levels.

- 3 Press **Add**.

The Add User screen opens.



Settings > User Management > Add User

User Name

Access Level

Password

Confirm Password

**Figure 17** Add User screen

- 4 In the **User Name** field, type a user name.
- 5 In the Access Level drop-down list, select an access level for the account. The options are Administrator and User.

See [Table 7](#) on page 35 for a description of access levels.

- 6 In the **Password** and **Confirm Password** fields, type a password for the account.
- 7 Press **OK** to save the account.  
A message box opens confirming the creation of the new account. Click **OK** to close the message box. You are returned to the User Management screen.
- 8 Repeat [step 3](#) through [step 7](#) for any additional user accounts that you want to create.

### Step 3. Log in to your personal user account








Logging in to your personal account allows you to access your user folder. If you are logged in as *Guest*, you must save the experiment to the Guest folder.

- 1 From the Home screen of the touchscreen, press **User Login**.  
Alternatively, from any screen of the touchscreen, press **Current User** at the bottom of the screen, then press **Open Login Page**.  
The User Login screen opens.
- 2 In the User Name drop-down, select your user name. In the Password field, type the password for the account.
- 3 Press **Login**.  
A message box opens confirming that you logged in to the instrument. Press **OK** to close the message box.  
To log out, press **Current User** at the bottom of any screen, then press **Log Out**.

## Customizing Instrument Settings

You can access a variety of instrument settings using the buttons on the Settings screen of the touchscreen. Each button takes you to a different screen in the touchscreen software. From each screen, press the Help icon for more information on the settings available.

**Table 8** Buttons on the Settings screen

| Button  | Description  |
|---|--|
|    | <b>User Management</b> – Opens the User Management screen, which has tools for creating and managing user accounts. This screen can only be accessed when an Administrator user is logged in to the instrument.  |
|    | <b>System Settings</b> – Opens the System Settings screen, which has tools for accessing and managing instrument settings including date/time, optical module information, PC connections, experiment resumption, instrument name and calibration processes. |
|    | <b>Software Updates</b> – Displays software version information for the instrument. An Administrator user can use this screen to update the AriaMx instrument software.  |
|  | <b>Hot Top Settings</b> – Use this button to enable or disable the instrument hot top.   |
|  | <b>Connection Settings</b> – Displays the IP address and other network information for the instrument.   |
|  | <b>Instrument Diagnostic</b> – Opens the Diagnostic Test screen, which contains buttons for running instrument troubleshooting tests and viewing and reporting the results. See “ <a href="#">Open the diagnostic report</a> ” on page 80.                   |
|  | <b>Calibrate Touch</b> – Use this button to calibrate the touchscreen. The calibration screen instructs you to touch a marker (+) appearing on the screen in order to calibrate the touchscreen response functions.  |



## 3 Installation of the AriaMx Software

|   |    |
|---|----|
| Minimum requirements for running the AriaMx software                              | 40 |
| Installing the Standard AriaMx Software   | 41 |
| Install the AriaMx software   | 41 |
| Launch the AriaMx software  | 47 |
| Installing the AriaMx ET (Electronic Tracking) Software                           | 48 |
| Install Microsoft SQL Server 2012   | 48 |
| Install the AriaMx ET software  | 54 |
| Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service | 62 |
| Launch the AriaMx ET software   | 66 |
| Installing Microsoft .NET Framework 4.0   | 67 |

This chapter contains installation instructions for installing the AriaMx software on your PC.

**Visit [www.agilent.com/genomics/AriaMx](http://www.agilent.com/genomics/AriaMx) to download the latest version of the AriaMx software.**



## Minimum requirements for running the AriaMx software

Before installing the AriaMx software, see [Table 9](#) for the minimum PC requirements needed to run the software.

**Table 9** Minimum requirements for running the AriaMx software

|                         |   |
|-------------------------|---|
| Operating system        | Windows 7 (Professional and Ultimate editions)  |
| Supported architectures | ×86 (32 bit)<br>×64 (64 bit)  |
| Programs*               | Microsoft .NET Framework 4.0<br>Runtime components of Microsoft Visual C++ 2010 Libraries |
| Processor               | 2 GHz Dual Core Processor   |
| Working memory (RAM)    | 2 GB (more is recommended)  |
| Hard disk space         | 40 GB   |
| Display resolution      | 1024 × 768 (1280 × 1024 is recommended)   |

\* If you do not have Microsoft .NET Framework 4.0 installed on your PC, you can install it using the installer provided on the AriaMx software CD (see [“Installing Microsoft .NET Framework 4.0”](#) on page 67). If you do not have the needed Microsoft Visual C++ 2010 components, then the AriaMx installer will automatically install them to your PC when you initiate installation of the AriaMx software.



## Installing the Standard AriaMx Software

### NOTE

The instructions in this chapter are for the installation of the standard AriaMx software. If you purchased the optional 21 CFR Part 11-compatible features – which include user authentication, database data storage, and audit trail support – use the instructions in “Installing the AriaMx ET (Electronic Tracking) Software” on page 48.

The AriaMx Real-Time PCR System comes with a CD for installing the AriaMx software on a desktop or laptop PC. However, because Agilent is always improving the software, a newer version may already be available. Before you install the software using the provided CD, check [www.agilent.com/genomics/AriaMx](http://www.agilent.com/genomics/AriaMx) to see if a newer version is available for download.

If you connected your instrument directly to a PC, install the software on that PC. If you connected your instrument to a network, install the software on a network PC. You can install the standard AriaMx software on an unlimited number of PCs.

Before starting the installation, make sure your PC meets the minimum requirements needed to run the AriaMx software. See [Table 9](#) on page 40 for a list of the minimum requirements.

### Install the AriaMx software

To install the AriaMx software:

- 1 Insert the provided CD into the CD drive of your PC.
- 2 In Windows Explorer, open the contents of the CD.
- 3 Open the AriaMx PC Software 1.0 Installer subfolder. In this subfolder, double-click the file called *Agilent AriaMx Software Setup 1.0.exe*.

The AriaMx software installation wizard starts. Following the file extraction process, the wizard opens to the Welcome window.

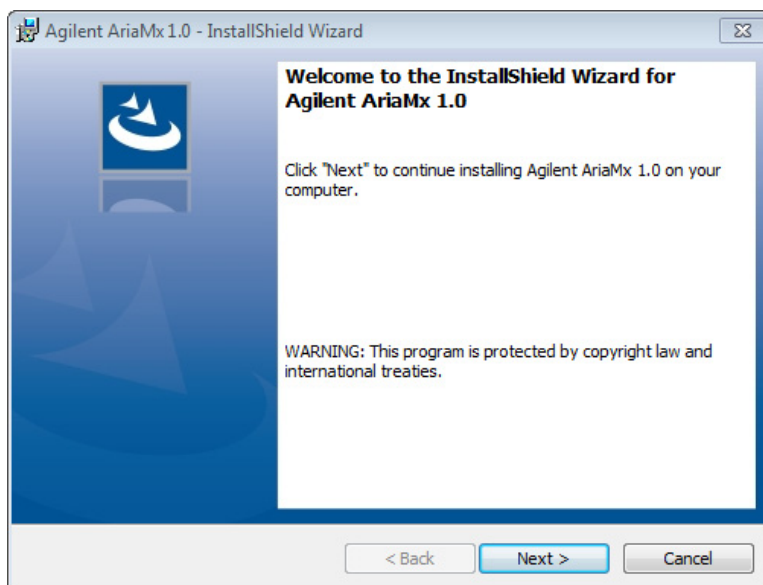
### 3 Installation of the AriaMx Software

#### Install the AriaMx software

#### NOTE

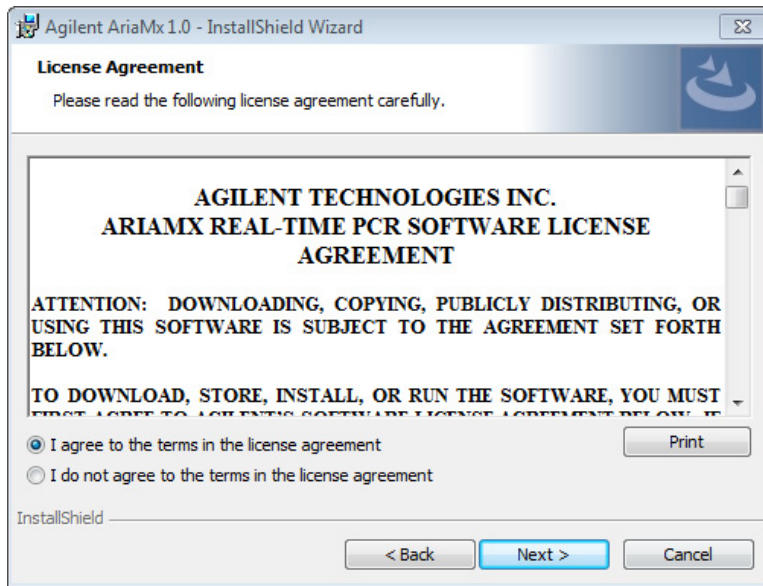
If you receive an error message stating that Microsoft .NET Framework 4.0 needs to be installed, you must cancel the installation and install Microsoft .NET Framework 4.0 first. To cancel the AriaMx installation, click **OK** in the error message box, then click **Finish** in the installation wizard.

See “[Installing Microsoft .NET Framework 4.0](#)” on page 67 for instructions on installing Microsoft .NET Framework 4.0.



**Figure 18** Agilent AriaMx installation wizard – Welcome window

- 1 Click **Next** to continue with the installation.  
The License Agreement window opens.



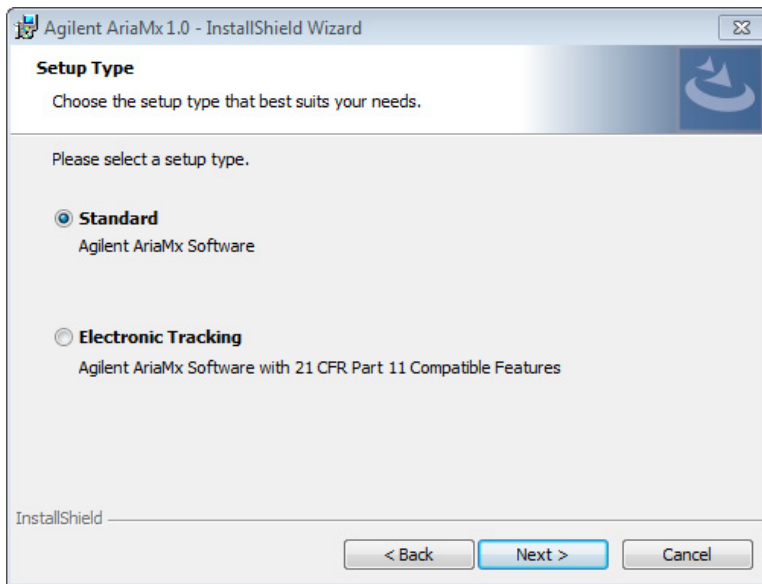
**Figure 19** Agilent AriaMx installation wizard – License Agreement window

- 2 If you accept the terms of this agreement, select **I agree to the terms in the license agreement** and click **Next**. (If desired, click **Print** before clicking **Next** to print a copy of the license agreement.)

The Setup Type window opens.

### 3 Installation of the AriaMx Software

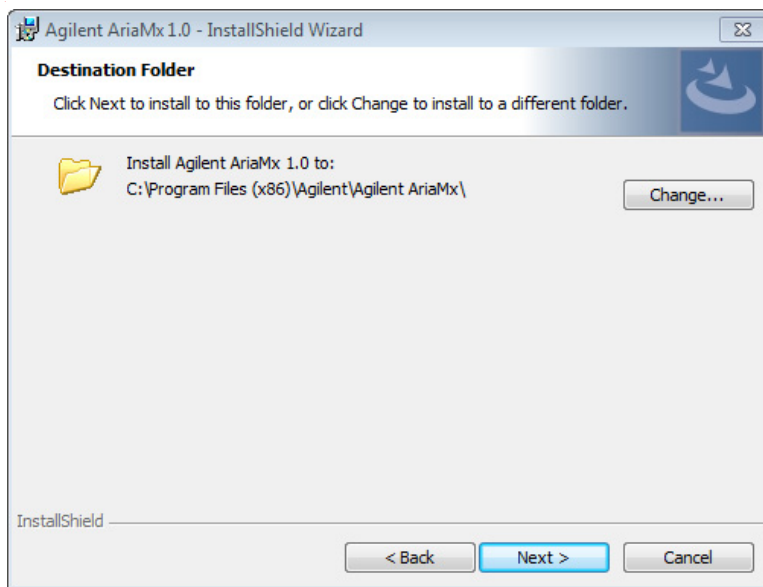
#### Install the AriaMx software



**Figure 20** Agilent AriaMx installation wizard – Setup Type window

- 3 In the Setup Type window, **Standard** is selected by default. Leave this default selection in place and click **Next**.

The Destination Folder window opens.



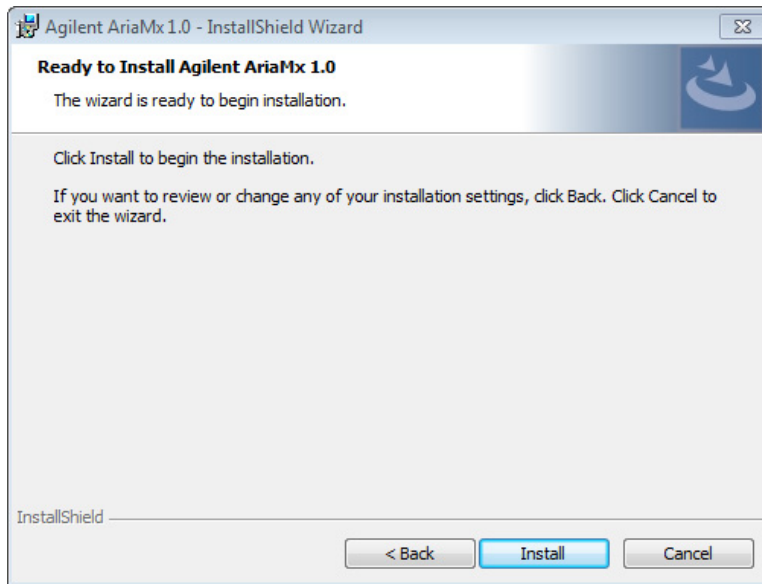
**Figure 21** Agilent AriaMx installation wizard – Destination Folder window

- 4 Designate a folder for the software files. The default folder is C:\Program Files (x86)\Agilent\Agilent AriaMx.
  - If you want to install the software to the default folder, click **Next** to continue.
  - If you want to designate a different folder, click **Change** in the Destination Folder window. In the dialog box that opens, browse to the desired folder, select the folder, and click **Open**. Then, in the Destination Folder window, click **Next** to continue.

The Ready to Install window opens.

### 3 Installation of the AriaMx Software

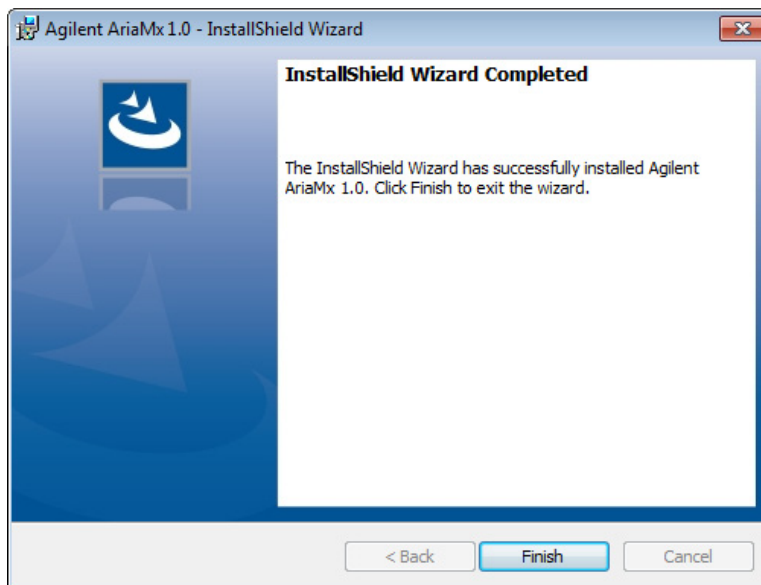
#### Install the AriaMx software



**Figure 22** Agilent AriaMx installation wizard – Ready to Install window

#### 5 Click **Install**.

The wizard installs the AriaMx software to the folder designated in [step 4](#). When installation is complete, the InstallShield Wizard Completed window opens.



**Figure 23** Agilent AriaMx installation wizard – InstallShield Wizard Completed window

**6** Click **Finish** to close the wizard.

## Launch the AriaMx software

After installation is complete, the software is ready to launch.

To launch the AriaMx software:

- From the Start menu, click **All Programs > Agilent > Agilent AriaMx > Agilent AriaMx 1.0**.

The software opens to the Getting Started screen.

### NOTE

During installation, a set of sample experiments and sample templates were saved to the following folders.

C:\Users\Public\Documents\Agilent AriaMx\Sample Experiments  
C:\Users\Public\Documents\Agilent AriaMx\Experiment Templates

You can now open these files in the AriaMx software.

## Installing the AriaMx ET (Electronic Tracking) Software

### NOTE

The instructions in this chapter are only suitable if you purchased the AriaMx ET (electronic tracking) software, which includes the optional 21 CFR Part 11-compatible features. If you did not purchase the ET version of the software, see the installation instructions in “Installing the Standard AriaMx Software” on page 41.

The AriaMx Real-Time PCR System comes with a CD for installing the AriaMx ET software on a desktop or laptop PC. Before you install the software using the provided CD, check [www.agilent.com/genomics/AriaMx](http://www.agilent.com/genomics/AriaMx) to see if a newer version is available for download.

Make sure your PC meets the minimum requirements needed to run the AriaMx software. See [Table 9](#) on page 40 for a list of the minimum requirements.

**Note for MxPro users** The database system used by AriaMx ET (Microsoft SQL Server 2012) and the database system used by MxPro ET (Microsoft Server Desktop Engine) are known to have incompatibility issues. For this reason, AriaMx ET users need to make sure to install SQL Server on a PC that is not already running Microsoft Server Desktop Engine.

## Install Microsoft SQL Server 2012

The AriaMx ET software uses SQL Server for storage of the databases. Install SQL Server prior to installing the AriaMx ET software.

### NOTE

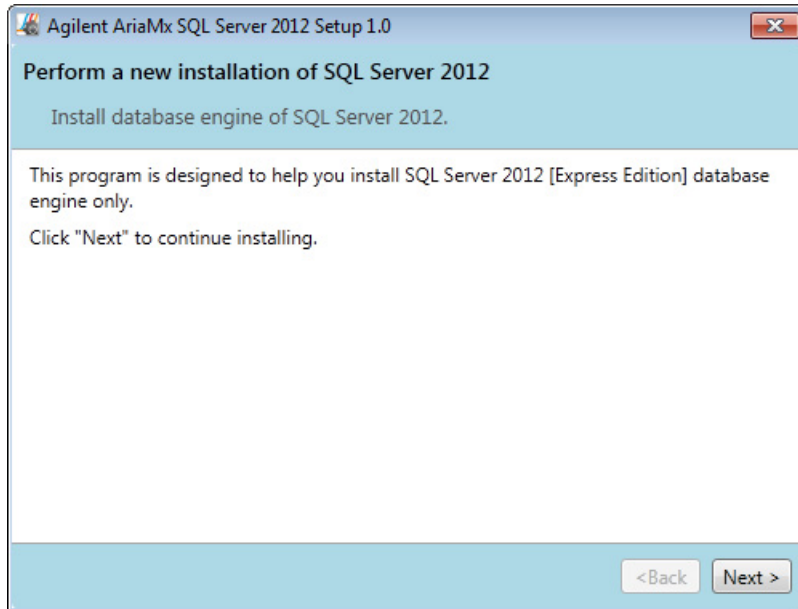
You can install SQL Server on a different PC than the AriaMx ET software provided that the two PCs are on the same network domain. Importantly, the AriaMx ET PC and the SQL Server PC need to be joined to the same domain prior to installation of the AriaMx ET software. Your network administrator can help you join the PCs to the same domain.

To install SQL Server:

- 1 Insert the provided CD into the CD drive of your PC.
- 2 In Windows Explorer, open the contents of the CD.



- 3 Open the AriaMx SQL Server 1.0 Installer subfolder. In this subfolder, double-click the file called *Agilent.AriaMx.SQLServer2012Setup.exe*. The AriaMx SQL Server installation wizard opens.

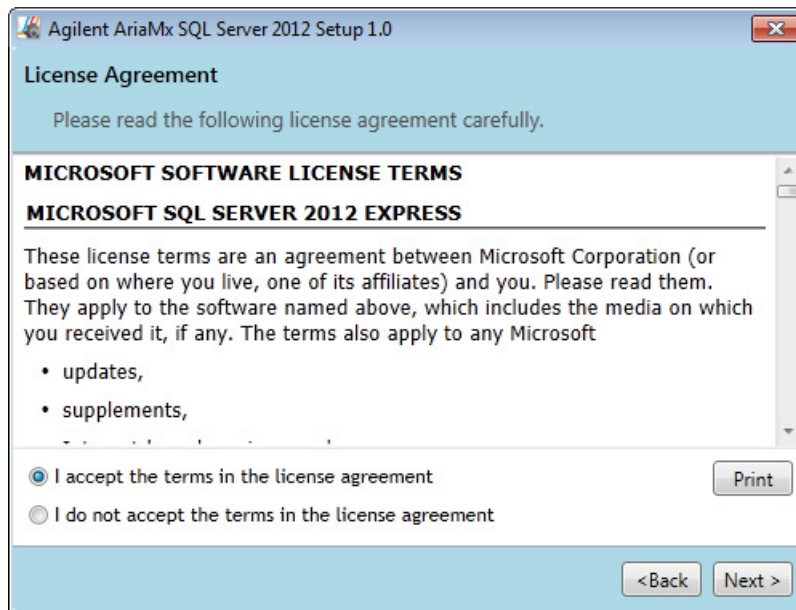


**Figure 24** AriaMx Microsoft SQL Server 2012 installation wizard

- 4 Click **Next** to continue. The License Agreement window opens.

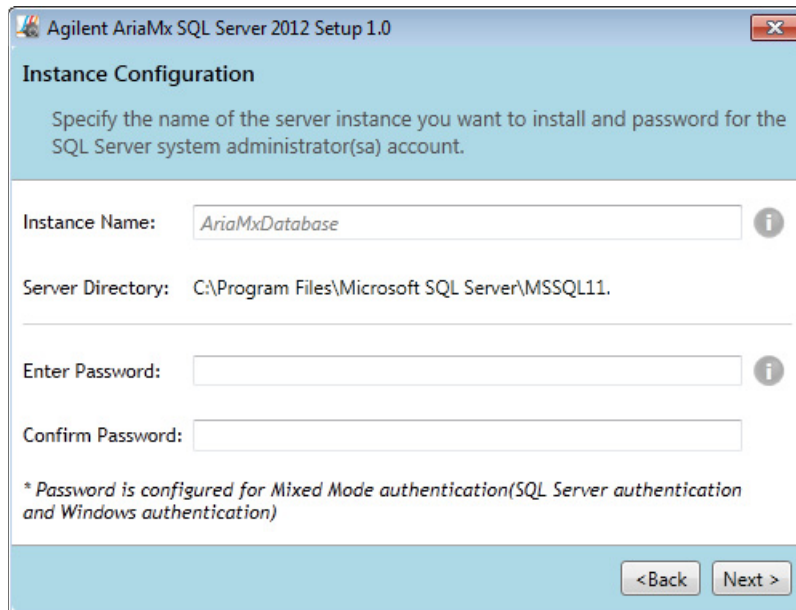
### 3 Installation of the AriaMx Software

#### Install Microsoft SQL Server 2012



**Figure 25** AriaMx Microsoft SQL Server 2012 installation wizard – License Agreement window

- 5 If you accept the terms of this agreement, select **I accept the terms in the license agreement** and click **Next**. (If desired, click **Print** before clicking **Next** to print a copy of the license agreement.)  
The Instance Configuration window opens.

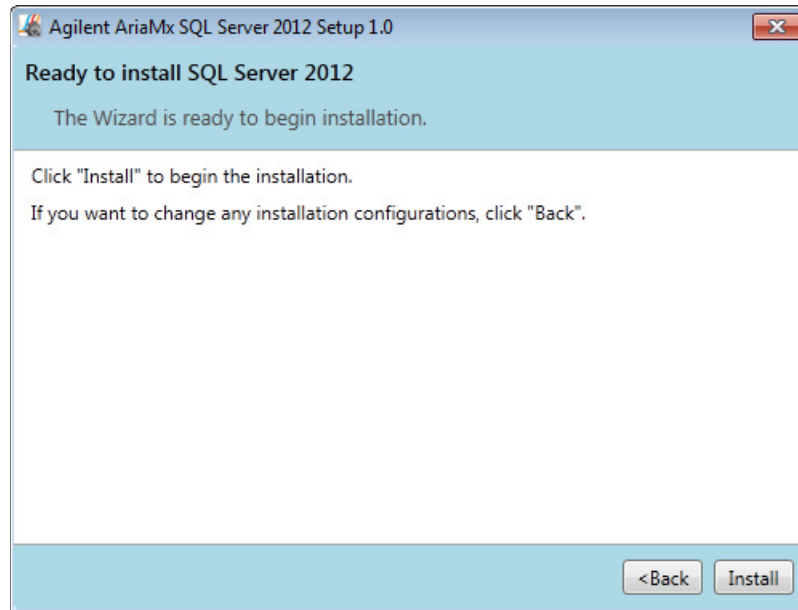


**Figure 26** AriaMx Microsoft SQL Server 2012 installation wizard – Instance Configuration window

- 6 In the Instance Name field of the Instance Configuration window, type a name for the server instance you want to install. Hover your cursor over the Information icon next to the field to see guidelines on selecting a valid instance name.
- 7 In the Enter Password field, type a password for the server instance. Hover your cursor over the Information icon next to the field to see guidelines on selecting a valid password. Type the password again in the Confirm Password field.
- 8 Click **Next** in the Instance Configuration window.  
The Ready to Install window opens.

### 3 Installation of the AriaMx Software

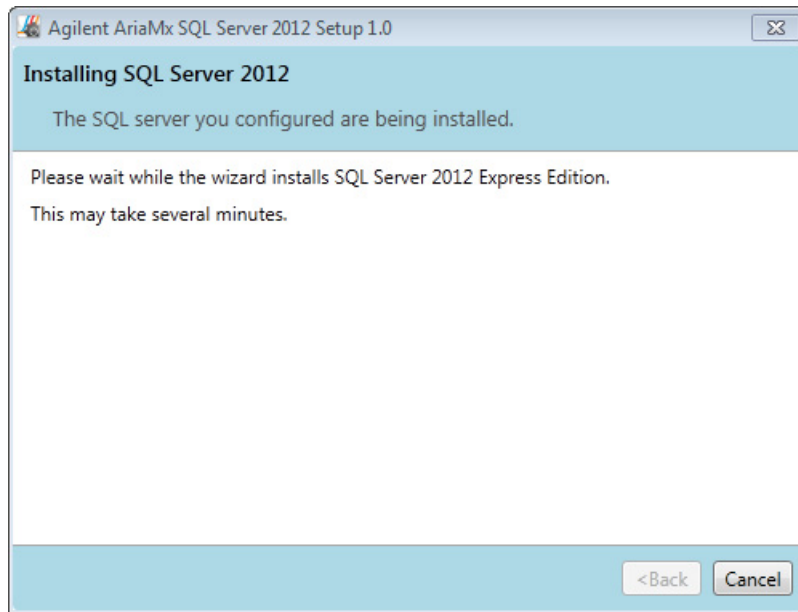
#### Install Microsoft SQL Server 2012



**Figure 27** AriaMx Microsoft SQL Server 2012 installation wizard – Ready to Install window

#### 9 Click **Install**.

The Installing window opens and remains open until installation is complete.

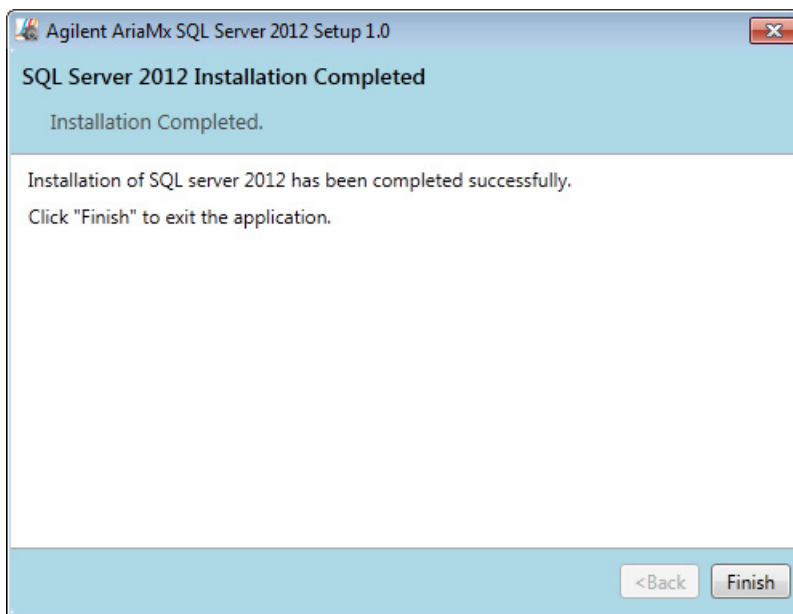


**Figure 28** AriaMx Microsoft SQL Server 2012 installation wizard – Installing window

When installation is complete, the SQL Server 2012 Installation Completed window opens.

### 3 Installation of the AriaMx Software

#### Install the AriaMx ET software



**Figure 29** AriaMx Microsoft SQL Server 2012 installation wizard – SQL Server 2012 Installation Completed window

**10** Click **Finish** to close the wizard.

## Install the AriaMx ET software

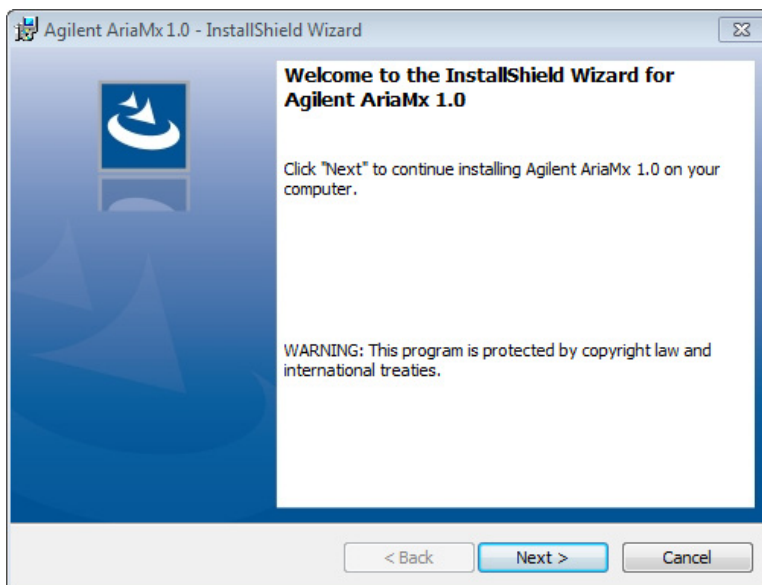
To install the AriaMx ET software:

- 1** Insert the provided CD into the CD drive of your PC.
- 2** In Windows Explorer, open the contents of the CD.
- 3** Open the AriaMx PC Software 1.0 Installer subfolder. In this subfolder, double-click the file called *Agilent AriaMx Software Setup 1.0.exe*.

The AriaMx software installation wizard starts. Following the file extraction process, the wizard opens to the Welcome window.

**NOTE**

If you receive an error message stating that Microsoft .NET Framework 4.0 needs to be installed, cancel the installation of the AriaMx software and install Microsoft .NET Framework 4.0 first. See “Installing Microsoft .NET Framework 4.0” on page 67.

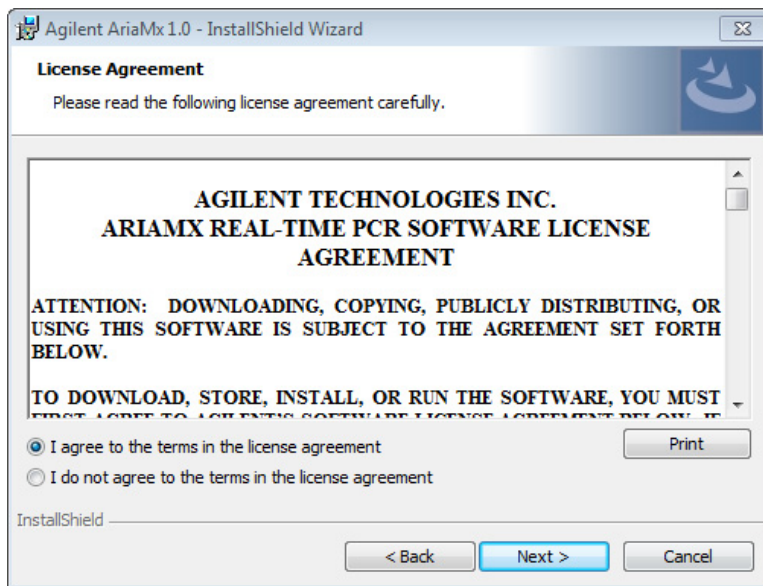


**Figure 30** Agilent AriaMx installation wizard – Welcome window

- 1 Click **Next** to continue with the installation.  
The License Agreement window opens.

### 3 Installation of the AriaMx Software

#### Install the AriaMx ET software

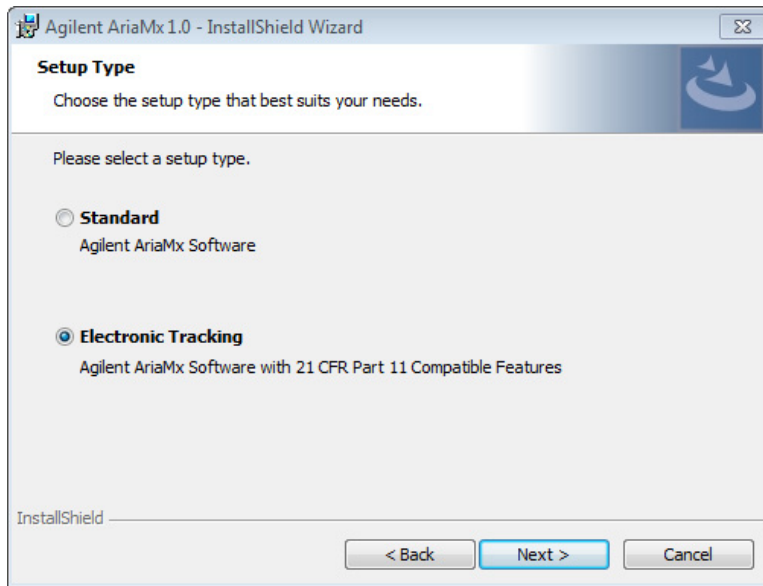


**Figure 31** Agilent AriaMx installation wizard – License Agreement window

- 2 If you accept the terms of this agreement, select **I agree to the terms in the license agreement** and click **Next**. (If desired, click **Print** before clicking **Next** to print a copy of the license agreement.)

The Setup Type window opens.



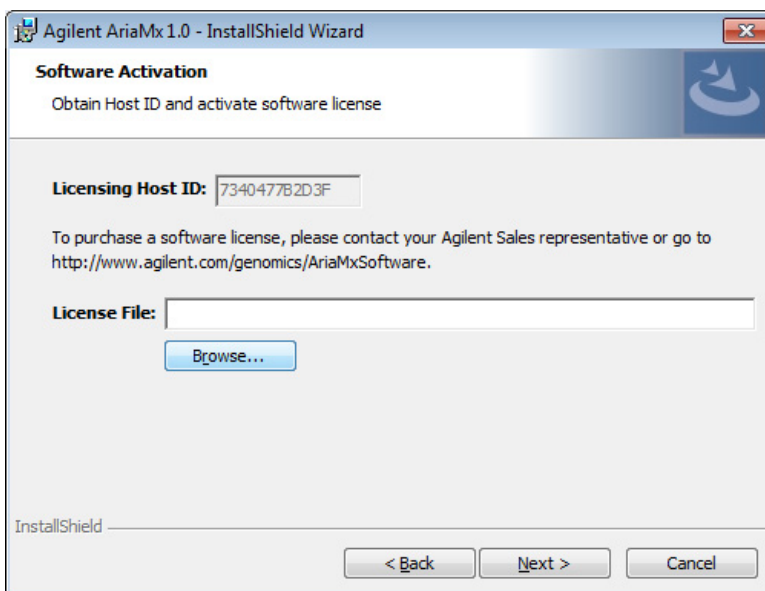


**Figure 32** Agilent AriaMx installation wizard – Setup Type window

- 3** In the Setup Type window, select **Electronic Tracking** and click **Next**. The Software Activation window opens.

### 3 Installation of the AriaMx Software

#### Install the AriaMx ET software



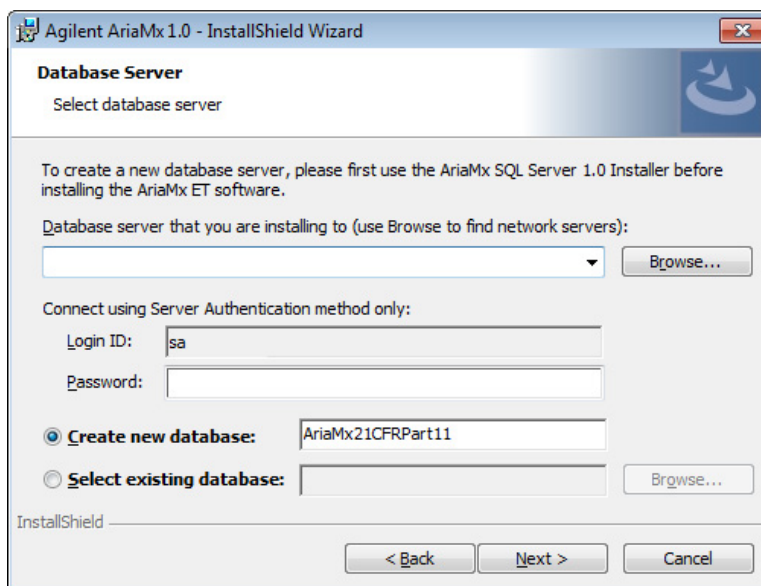
**Figure 33** Agilent AriaMx installation wizard – Software Activation window

- 4 The Software Activation window displays the Licensing Host ID. Follow the instructions provided on your Software Entitlement Certificate to use this Licensing Host ID to redeem your software license and save the file to your PC. Then, in the Software Activation window, click **Browse** to open a dialog box where you can browse to the folder containing the license file. Select the file and click **Open**.

The dialog box closes and you are returned to the Software Activation window.

- 5 Click **Next**.

The Database Server window opens.



**Figure 34** Agilent AriaMx installation wizard – Database Server window

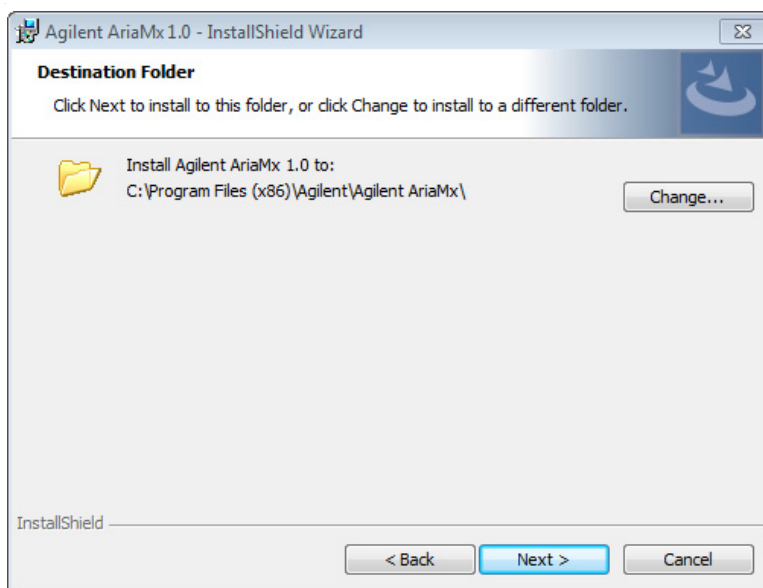
- 6** In the drop-down list at the top of the Database Server window, select the database server instance that you set up while installing SQL Server (see [step 6](#) on [page 51](#)).
- 7** In the Password field, type the password for the database server instance that you entered while installing SQL Server (see [step 7](#) on [page 51](#)).
- 8** Select a database to use as the primary database when you log in to the AriaMx ET software.
  - To create a new database, select **Create new database**. Type a name for the database into the adjacent field or use the default database name.
  - To select an existing database, select **Select existing database**. Click **Browse**, and in the dialog box that opens, select the database that you want to use and click **OK**. The dialog box closes.

After you make your selection, click **Next** in the Database Server window.

The Destination Folder window opens.

### 3 Installation of the AriaMx Software

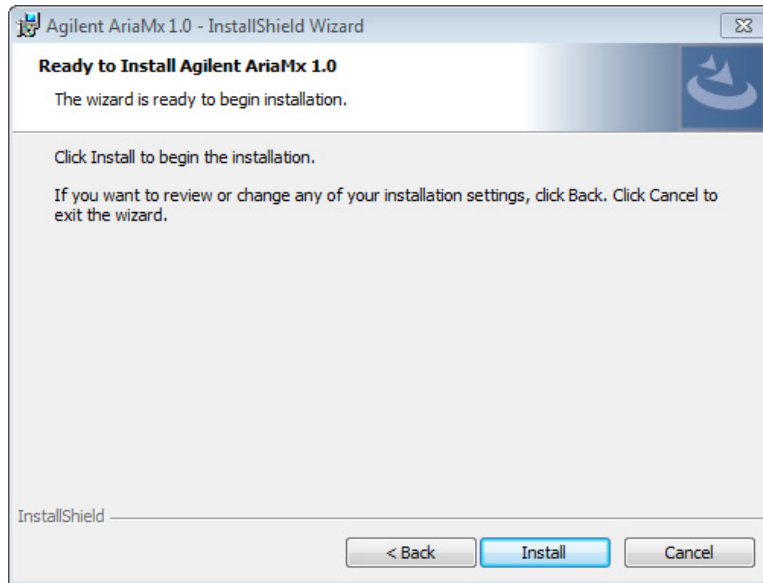
#### Install the AriaMx ET software



**Figure 35** Agilent AriaMx installation wizard – Destination Folder window

- 9 Designate a folder for the software files. The default folder is C:\Program Files (x86)\Agilent\Agilent AriaMx.
  - If you want to install the software to the default folder, click **Next** to continue.
  - If you want to designate a different folder, click **Change** in the Destination Folder window. In the dialog box that opens, browse to the desired folder, select the folder, and click **Open**. Then, in the Destination Folder window, click **Next** to continue.

The Ready to Install window opens.



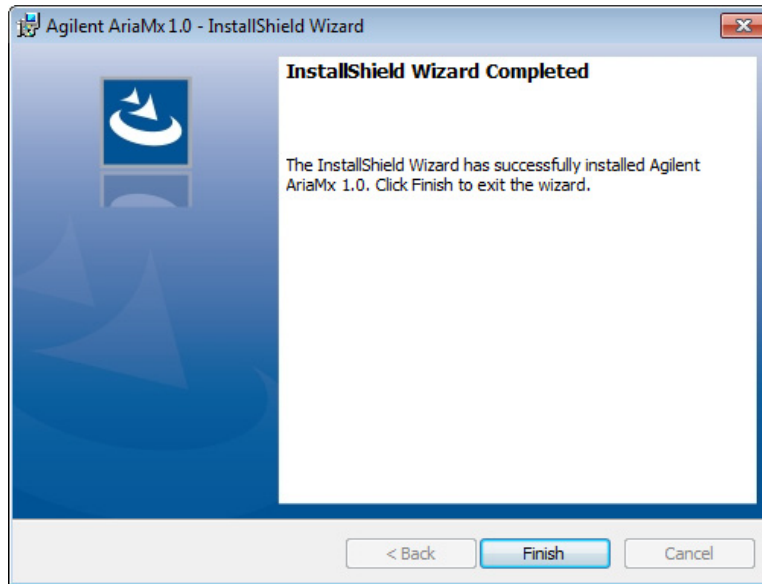
**Figure 36** Agilent AriaMx installation wizard – Ready to Install window

**10 Click Install.**

The wizard installs the AriaMx software to the folder designated in [step 9](#). When installation is complete, the InstallShield Wizard Completed window opens.

### 3 Installation of the AriaMx Software

Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service



**Figure 37** Agilent AriaMx installation wizard – InstallShield Wizard Completed window

11 Click **Finish** to close the wizard.

## Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service

In order to archive and restore experiments to and from a database in the AriaMx ET software, your PC must be running MSDTC service.

### Start MSDTC service

To start MSDTC service:

- 1 Open the Control Panel on your PC. Make sure you are viewing the Control Panel by category.
- 2 Click **System and Security**, then click **Administrative Tools**.  
The Administrative Tools folder opens in Windows Explorer.
- 3 Double-click **Services**.

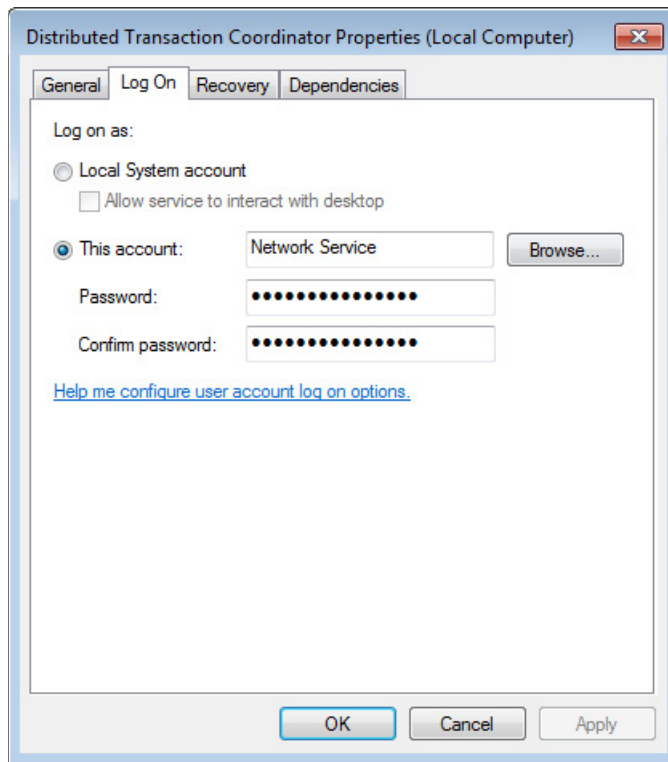
## Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service

The Services window opens.

- 4 In the Name column of the Services window, double-click **Distributed Transaction Coordinator**.

The Distributed Transaction Coordinator Properties dialog box opens.

- 5 Click the Log On tab of the Distributed Transaction Coordinator Properties dialog box. Make sure that **This account** is selected and that the adjacent field reads “Network Service.”

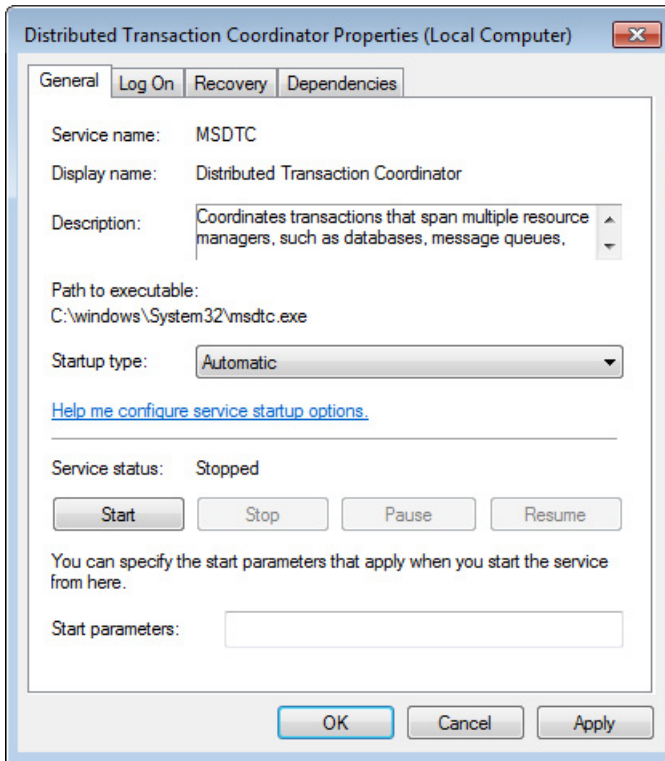


**Figure 38** Distributed Transaction Coordinator Properties dialog box – Log On tab

- 6 On the General tab of the Distributed Transaction Coordinator Properties dialog box, set the Startup type to **Automatic**, then click **Start**.

### 3 Installation of the AriaMx Software

#### Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service



**Figure 39** Distributed Transaction Coordinator Properties dialog box – General tab

- 7 Click **OK** to close the Distributed Transaction Coordinator Properties dialog box.

#### **Configure Network Distributed Transaction Coordinator (DTC) access**

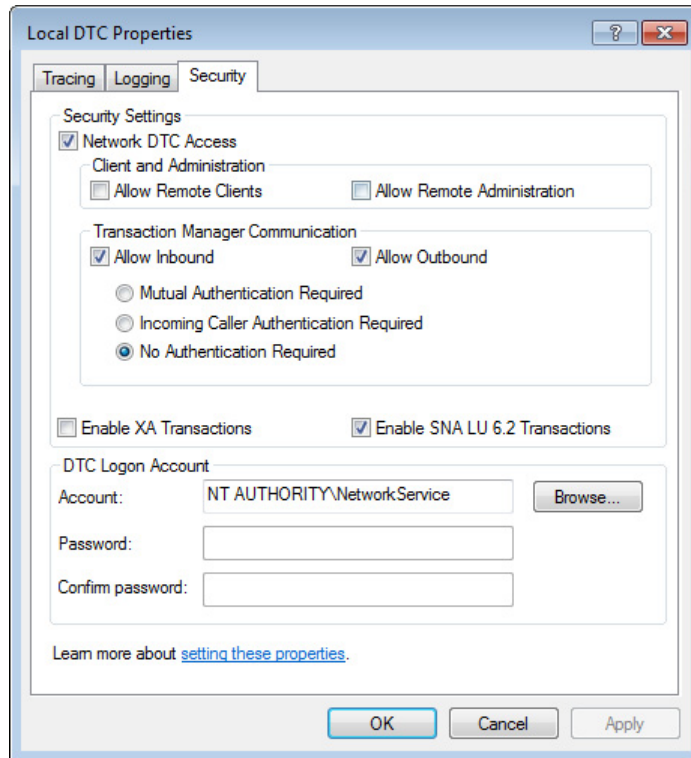
- 1 Open the Windows Start menu and click **Run**.  
The Run dialog box opens.
- 2 In the Open field, type **dcomcnfg.exe** and click **OK**.  
The Component Services window opens.
- 3 In panel on the right side of the Component Services window, expand **Component Services > Computers > My Computer > Distributed Transaction Coordinator**.
- 4 Right-click on **Local DTC**. In the pop-up menu click **Properties**.



## Configure and start Microsoft Distributed Transaction Coordinator (MSDTC) service

The Local DTC Properties dialog box opens.

- 5 Click the Security tab. Under **Security Settings** mark **Network DTC Access**.
- 6 Under **Transaction Manager Communication** mark **Allow Inbound** and **Allow Outbound**, and select **No Authentication Required**.



**Figure 40** Local DTC Properties dialog box – Security tab

- 7 Click **OK**.

The Local DTC Properties dialog box closes and the MSDTC service starts or restarts.

- 8 Close the Component Services window.

## Launch the AriaMx ET software

After installation is complete, the software is ready to launch.

To launch the AriaMx software:

- 1 From the Start menu, click **All Programs > Agilent > Agilent AriaMx > Agilent AriaMx 1.0**.

The Login dialog box opens, prompting you to log in to the primary database that you set up during installation the AriaMx ET software (see [step 8 on page 59](#)).

- 2 Log in using the default administrator account.

- a In the Username field, type **admin**.
- b In the Password field, type **Password**.
- c Click **Login** or press **Enter**.

The Change Password dialog box opens.

- 3 Select a new password for the account.

- a In the Old Password field, type **Password**.
- b In the New Password field, type a new password of your choosing. The password must be 6-15 characters in length and include at least one number.
- c Retype the new password into the Confirm Password field.
- d Click **OK**.

The dialog box closes. The software opens to the Getting Started screen.

### NOTE

During installation, a set of sample experiments and sample templates were saved to the following folders.

C:\Users\Public\Documents\Agilent AriaMx\Sample Experiments  
C:\Users\Public\Documents\Agilent AriaMx\Experiment Templates

You can now open these files in the AriaMx software.

## Installing Microsoft .NET Framework 4.0

In order to install the AriaMx software, you must have Microsoft .NET Framework 4.0 or greater installed on your PC. If you attempted to install the AriaMx software and received an error message stating that Microsoft .NET Framework 4.0 is needed, follow the instructions in this section to install this software.

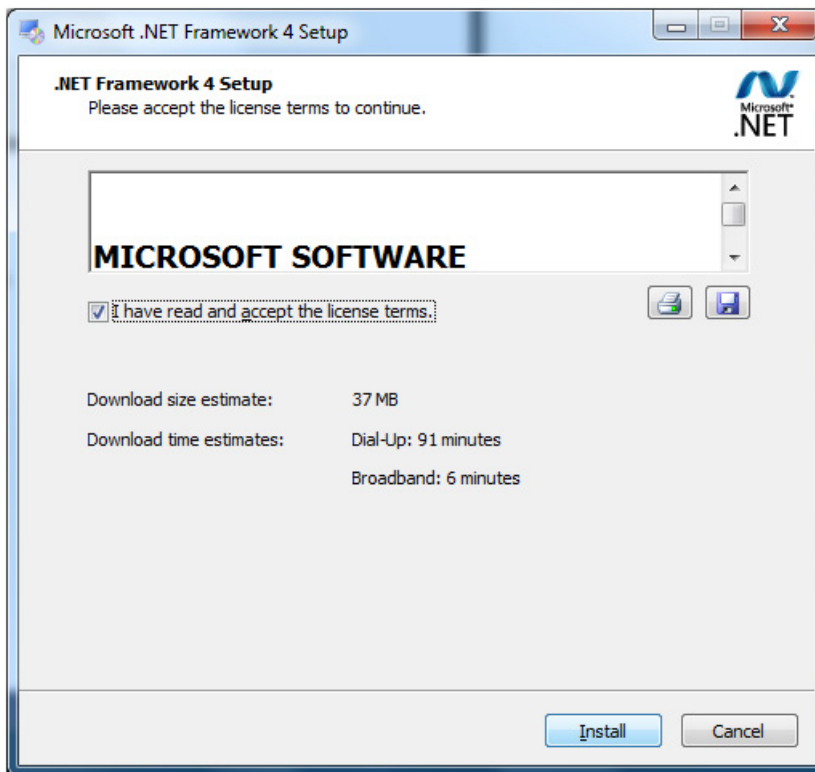
### Install Microsoft .NET Framework 4.0

- 1 Make sure your PC is connected to the internet.
- 2 Insert the provided CD into the CD drive of your PC.
- 3 In Windows Explorer, open the contents of the CD.
- 4 Open the Microsoft .NET 4.0 Standalone subfolder. In this subfolder, double-click the dotNetFx40\_Full\_setup.exe file.

The Microsoft .NET Framework 4 Setup window opens, displaying the software license.

### 3 Installation of the AriaMx Software

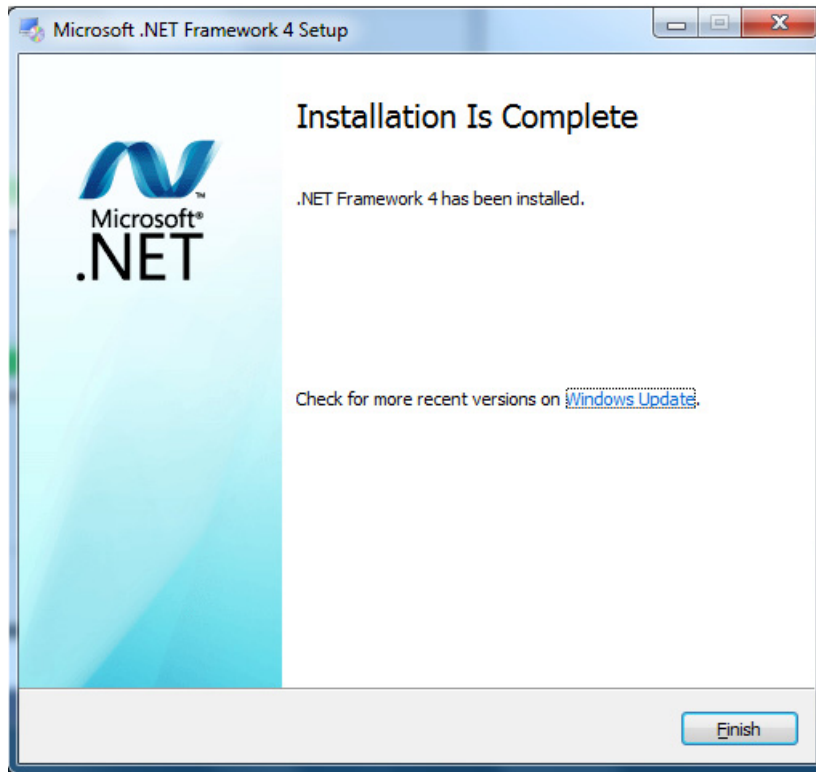
#### Install Microsoft .NET Framework 4.0



**Figure 41** Microsoft .NET Framework 4 Setup – License window

- 5 If you accept the terms of this agreement, select **I have read and accept the license terms** and click **Install**. (If desired, click the Print icon or Save icon before clicking **Install** to print or save a copy of the license agreement.)

The installer installs Microsoft .NET Framework 4.0. During installation, the Microsoft .NET Framework 4 Setup window remains open and displays progress bars for the installation tasks. When installation is complete, the Installation Is Complete window opens.

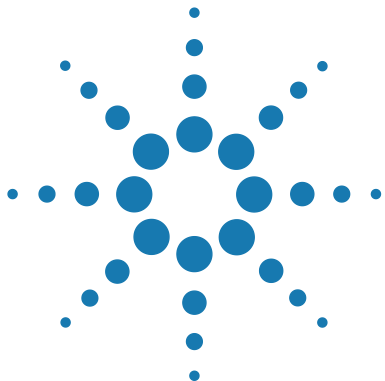


**Figure 42** Microsoft .NET Framework 4 Setup – Installation Is Complete window

- 6 Click **Finish** to close the Microsoft .NET Framework 4 Setup window. You can now install the AriaMx software. See “[Installing the Standard AriaMx Software](#)” on page 41.

### **3 Installation of the AriaMx Software**

#### **Install Microsoft .NET Framework 4.0**



## 4 Running Experiments

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This chapter contains instructions on preparing and running experiments and managing experiment files on the instrument.



## Preparing and Loading PCR Samples

### Prepare samples

When preparing the PCR reactions, follow the guidelines below for optimal results.

- Use only temperature-stable PCR tubes and plates. See “[Recommended plasticware](#)” on page 12 for a list of recommended tubes and plates.
- Place caps on tubes before loading samples into the thermal block.
- Spin samples briefly in a centrifuge immediately before loading them into the thermal block.

### Load samples

The instrument can be loaded with individual PCR tubes or strip tubes or one 96-well PCR plate.

- 1 Open the instrument door that covers the thermal block assembly by lifting up on the handle on the top of the instrument. Lift the door all the way up and back.
- 2 Lift the heated lid by pulling forward on the handle of the lid and then lifting the lid up and away from the thermal block.
- 3 Put your plate or tubes on the block and check that they are correctly positioned.
- 4 Close the heated lid until so that it latches into place.
- 5 Close the instrument door so that it latches into place.

#### **WARNING**

**Danger of Burns: The thermal block, sample tubes and plates may reach temperatures as high as 100°C. Keep hands away until temperature is 30°C or less.**

---



## Setting Up and Running Experiments

You can set up the plate and thermal profile for an experiment on either the instrument touchscreen software or on the AriaMx software on your PC. The instructions below provide the basic steps required to set up an experiment and start running the experiment. For more detailed information about setting up and running experiments, see the help system in the AriaMx PC software.

### Use the touchscreen to set up and run an experiment

- 1 (Optional) Log in the instrument. See “[Step 3. Log in to your personal user account](#)” on page 37.  
Logging in to your personal account allows you to save the experiment to your user folder. If you are logged in as *Guest*, you must save the experiment to the Guest folder.
- 2 On the Home screen, press **New Experiment**.  
The Experiment Types screen opens.
- 3 Create the experiment using one of the following approaches.
  - Press the desired experiment type. The Plate Setup screen opens.
  - Press **Open Template**. The Template screen opens. Press a template file to select it then press **Open**. The Plate Setup screen opens.
- 4 On the Plate Setup screen, set up the wells of the plate. Press the help icon for help with working on the Plate Setup screen.
- 5 Press the Thermal Profile tab.  
The Thermal Profile screen opens.
- 6 Set up the thermal profile for the experiment. Press the help icon for help with working on the Thermal Profile screen.
- 7 Load the samples onto the thermal block (see “[Load samples](#)” on page 72), and press **Run Experiment** on the Thermal Profile screen.  
A message box opens asking you to save the experiment. Click **OK** to open the Save Experiment screen.
- 8 Select a folder for the experiment file and press **Save**.

## 4 Running Experiments

### Use the PC software to set up and run an experiment

The Raw Data Plots screen opens, allowing you to monitor the progress of the run.

## Use the PC software to set up and run an experiment

- 1 On the Getting Started screen, create the experiment using one of the following approaches.
  - Click **Experiment Types**. The screen displays the experiment types. Click the desired experiment type to select it. Type a name for the experiment and click **Create**. The Plate Setup screen opens.
  - Click **My Templates**. The screen displays the templates in the default template folder. Click the desired template to select it. Type a name for the experiment and click **Create**. The Plate Setup screen opens.
- 2 On the Plate Setup screen, set up the wells of the plate. See the software help system for help with setting up the plate.
- 3 Click **Thermal Profile** in the Experiment Area on the left side of the screen.

The Thermal Profile screen opens.
- 4 Set up the thermal profile for the experiment. See the software help system for help with setting up the thermal profile.
- 5 Click **Run**.

The Instrument Explorer dialog box opens.
- 6 In the dialog box, locate the instrument and click **Send Config**.
  - If you have not already logged in to the selected instrument, you will be prompted to log in before continuing.
  - If you have not already saved the experiment you will be prompted to save it before continuing.
- 7 Load your samples onto the thermal block (see “[Load samples](#)” on page 72).
- 8 At the bottom of the instrument touchscreen, press the icon shown below.



In the pop-up menu that opens, press **Open Primed Experiment**.

The experiment opens on the touchscreen.

- 9 On the Thermal Profile screen of the touchscreen, press **Run Experiment**.

The Raw Data Plots screen opens, allowing you to monitor the progress of the run.

## Managing Saved Experiments

Each user account, including the Guest account, has its own user folder on the AriaMx instrument. Users can save and retrieve experiment files to and from the folders to which they have access. (All users have access to the Guest folder and the folder for their account. Administrator accounts have access to all folders on the instrument. Users logged in as *Guest* can only access the Guest folder and the HRM Calibration folder.)

### Locate saved experiment files

- 1 If necessary, log in the instrument. See “[Step 3. Log in to your personal user account](#)” on page 37.

Logging in to your personal account allows you to access experiment files in your user folder. If you are logged in as *Guest*, you can only access experiment files in the Guest folder and the HRM Calibration folder (which only contains HRM calibration experiments).

- 2 On the Home screen of the touchscreen, press **Saved Experiment**.

The Experiment Explorer screen opens. The left side of the screen lists the folders to which you have access.

- 3 Press directly on a folder to select it.

The right side of the screen lists the experiment files and any subfolders in the selected folder. Experiment files have the file extension *amxd*.

- 4 To open a subfolder, double-press the subfolder on the right side of the screen.

The subfolder expands to display the experiment files and subfolders contained within.

## Create a subfolder

- 1 On the Experiment Explorer screen, locate the folder in which you want to create a subfolder. Press the folder to select it.  
See “[Locate saved experiment files](#)”, above, for instructions on opening and navigating the Experiment Explorer screen.
- 2 Press **New Folder**.  
The virtual keyboard appears.
- 3 In the New Folder Name field, type a name for the subfolder. Press **Create Folder**.  
The new subfolder appears on the Saved Experiment screen.

## Copy and paste experiments

- 1 On the Experiment Explorer screen, locate the experiment that you want to copy. Press the experiment to select it.  
See “[Locate saved experiment files](#)” on page 76 for instructions on opening and navigating the Saved Experiment screen.
- 2 Press **Copy**.
- 3 Browse to the folder to which you want to paste the experiment file. Press the folder to select it.
- 4 Press **Paste**.  
The experiment file is pasted to the selected folder.

## Transfer experiments to a USB drive

- 1 Insert a FAT format USB drive into the USB port on the front of the instrument.
- 2 On the Experiment Explorer screen, locate the experiment that you want to copy. Press the experiment to select it.  
See “[Locate saved experiment files](#)” on page 76 for instructions on opening and navigating the Saved Experiment screen.
- 3 Press **Copy**.

## 4 Running Experiments

### Transfer experiments to a USB drive

**4** On the left side of the Experiment Explorer screen, press the folder for the USB drive (called USBDisk).

**5** Press **Paste**.

The experiment file is saved to the USB drive.



## 5 Troubleshooting, Maintenance, and Updates

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This chapter contains instructions for maintaining the instrument and uploading software updates.



## Troubleshooting Instrument Error Messages

When the instrument detects issues with the hardware, firmware, or optical modules, it notifies you with an error message. Error messages are also prompted when the instrument encounters an issue while running the scanning application feature or while performing diagnostic tests.

### View error messages

When the AriaMx instrument encounters an error, it notifies you by displaying an error icon at the bottom of the touchscreen.

- 1 Press the error icon at the bottom of the touchscreen.
- 2 In the pop-up menu that opens, press **Count X**, where X is the number of error messages to be read.

A table opens displaying the following information.

- **Type** - The type of message (Error or Warning). Warning messages are used for errors that do not prevent you from running experiments on the instrument.
- **ID** - The error code ID number.
- **Description** - A description of the error with instructions on how to resolve it.

- 3 Press **OK** to close the table.

### Open the diagnostic report

Some error messages may instruct you to refer to the diagnostics report for further details about the cause of an error.

- 1 Log in using an Administrator account.  
See “[Step 1. Log in to the instrument using an Administrator account](#)” on page 35.
- 2 On the Home screen, press **Settings**.  
The Settings screen opens.



**3** Press **Instrument Diagnostic**.

The Diagnostic Test screen opens.

**4** Press **View Result**.

The Diagnostic Report screen opens. The table lists each category of diagnostic test included on the report.

**5** Double-press a category to expand its contents.

The table displays the tests within that category. The Results column indicates if the test passed or failed. The Run Date column lists the date and time of the test.

## Maintaining the Instrument

The AriaMx instrument is designed to require a minimum amount of maintenance by the user.

### Service the instrument

As preventative maintenance, Agilent recommends having your AriaMx instrument serviced by an Agilent service engineer every 12 months. Contact Agilent technical support for information on instrument service. See “[Agilent Technical Support](#)” on page 18 for contact information.

### Clean the instrument

Use the guidelines below to clean the AriaMx instrument.

- Use a damp cloth moistened with water or isopropyl alcohol to clean the outside of instrument.
- Do not let organic solvents or aggressive solutions come in contact with the instrument.
- Do not let liquid enter the instrument.
- Turn off and disconnect the instrument from the power supply before you clean.

## Clean the optical modules

To clean an optical module:

- 1 Remove the optical module from its slot in the optical module housing.
  - a Open the lid on the optical module housing carrier.
  - b Lift the hinged tab on the top of the optical module (see [Figure 43](#)), then use the tab to lift the optical module out of its slot.

**Figure 43** Lifting the hinged tab on an optical module



- 2 Using an aerosol can of compressed air, clean the bottom surface of the optical module (the surface opposite of the label). Hold the can 3–4 inches away from the surface as you press the trigger.
- 3 (Optional) Wipe the bottom surface with a lens cloth or lens tissue moistened with reagent-grade isopropyl alcohol or reagent-grade acetone.
- 4 Re-install the optical module into the housing. Lower the hinged tab until it snaps into place.
- 5 Close the lid on the housing carrier.

## Updating the Instrument Software

You will be notified by Agilent when a new version of the instrument software is available. This notification includes a web address where you can download the software files. Save these files to a USB memory stick and then upload them to your instrument using the instructions below.

- 1 Login to one of the Administrator user accounts. See “[Step 1. Log in to the instrument using an Administrator account](#)” on page 35.
- 2 From the Home screen, press **Settings** and then press **Software Update**.
- 3 Insert the USB memory stick into the USB port on the front of the instrument.
- 4 Press **Browse** to open a browser that allows you to navigate to the folder containing the software files. Select the appropriate folder and press **OK** to return to the Software Update screen.
- 5 Press **Update**.  
The instrument begins the update. When the update is complete, the instrument automatically reboots.
- 6 When the reboot is complete, you may return to the Software Update screen to confirm the new version of the software is running.



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## In This Book

This document describes how to program and use the Agilent AriaMx Real-Time PCR System.

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