

Dear ABI Prism™6100 PrepStation User,

Thank you for installing the latest version of 6100 firmware. Detailed descriptions of the new features and protocols in this upgrade may be found by downloading, from [www.appliedbiosystems.com/6100](http://www.appliedbiosystems.com/6100), the 6100 Users Manual revision A2.

To install the new version of firmware please refer to and read carefully the 6100 user's manual Chapter 11 "Firmware Upgrade" at the end of this letter. Failure to follow the directions in this chapter may result in loss of stored methods.

Version 1.07 of 6100 firmware has the following new features:

1. **Methods.** The ability to create, edit, save and delete up to 300 new methods.
2. **Methods.** The ability to sort methods, by method name, number of steps or date last used.
3. **Pre-Defined Methods.** The addition of new Pre-Defined Methods. These consist of versions of the existing RNA isolation protocols incorporating steps to enable use of a new "in-protocol", "on-column" DNase reagent for the removal of any residual contaminating genomic DNA. The reagent is called AbsoluteRNA Wash Solution (p/n 4305545).
4. **Pre-Defined Methods.** The ability to copy and edit Applied Biosystems Pre-Defined Methods and save them your own user name.
5. **Users.** The ability to add up to 18 user names (for a total of 20 users) with secure PIN numbers. Users may then save new methods against their user name, ensuring that their own protocols are stored safely.
6. **Utilities.** Addition of a real time clock and date display in the instrument front screen. The date and time may be formatted in a number of different ways from the instrument utility page.

The following features are NOT included in this version but will be completed in subsequent upgrades.

1. **Printing**
2. **Run Log**

If anyone has any further questions, or requires help with the firmware upgrade procedure please contact your local technical support personnel.

Best regards

Andy Felton  
Product Manager  
Sample Preparation Systems

# *Firmware Upgrade*

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## Overview

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**About This Chapter** This chapter explains how to upgrade the firmware on the ABI PRISM™ 6100 Nucleic Acid PrepStation. Your 6100 prepstation has firmware loaded when you receive it. This chapter describes how to upgrade to a later version of firmware when it becomes available.

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**In This Chapter** This chapter contains the following topics:

Topic	See Page
Preparing for a Firmware Upgrade	11-2
Upgrading Firmware	11-7
Troubleshooting Upgrade Problems	11-12

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## Preparing for a Firmware Upgrade

**Overview** Preparing to upgrade the firmware consists of the following procedures:

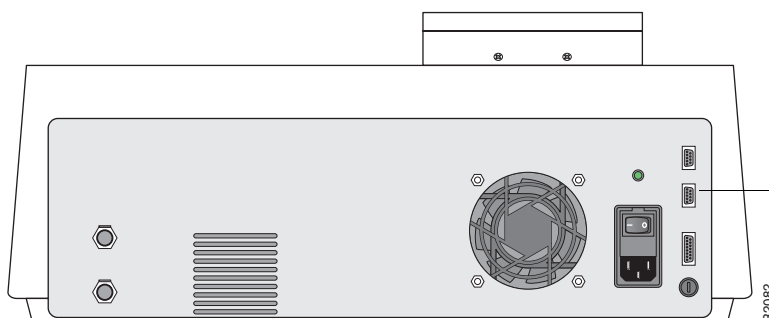
Procedure	See Page
Connecting the Serial Cable	11-2
Installing Utility Software	11-2
Copying Firmware	11-6

**IMPORTANT** If you are attempting to download an older version of firmware than is currently running on the 6100 prepstation, see “About Downgrading” on page 11-15.

**Connecting the Serial Cable** A serial cable is provided with the 6100 prepstation.

To connect the serial cable:

Step	Action
1	Attach one end of the cable to the COM 1 port on your PC.
2	Attach the other end to the firmware download serial port at the rear of the 6100 prepstation. It is the second connector from the top, as shown below.

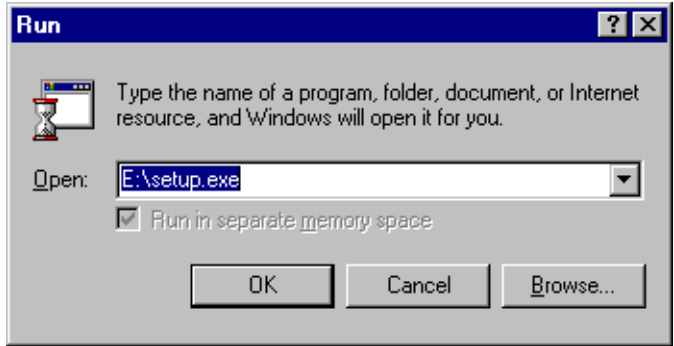
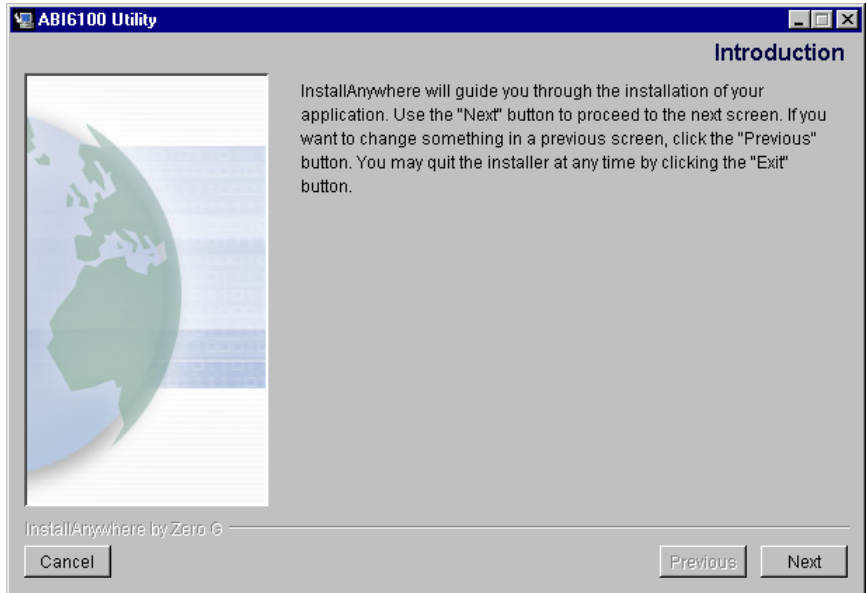


The diagram shows the rear panel of the 6100 prepstation. On the right side, there is a vertical stack of connectors. The second connector from the top is a serial port, labeled 'Firmware download port' with a line pointing to it. Other connectors include a power jack, a USB port, and a serial port. A label 'GR2082' is visible on the right side of the panel.

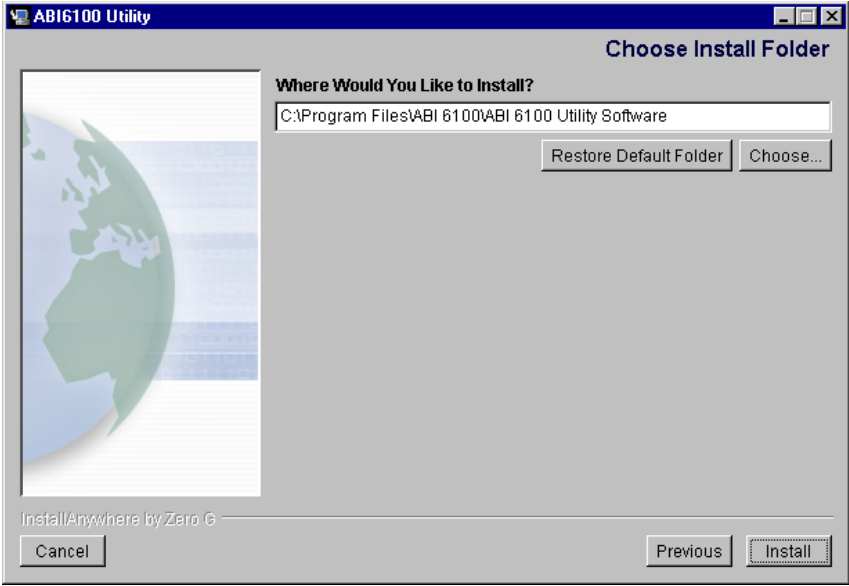
**Installing Utility Software** To install the Utility Software on your PC:

Step	Action
1	Close all programs running on your PC.
2	Insert the Utility Software CD in your PC's CD drive and close the drive door.

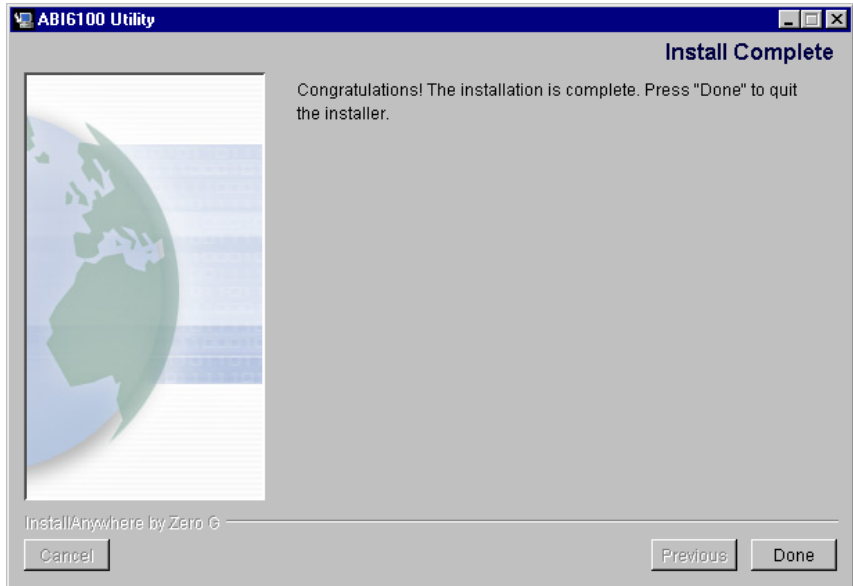
To install the Utility Software on your PC: *(continued)*

Step	Action
3	<p>Choose <b>Start &gt; Run</b>.</p> <p>The Run window appears.</p> 
4	<p>In the Open box type</p> <p><b>E:\ABI6100 Utility Installer.exe</b></p> <p>(where E is the appropriate drive letter) or browse for this file by clicking Browse. Then click <b>OK</b>.</p> <p>The InstallAnywhere program runs.</p> 

To install the Utility Software on your PC: *(continued)*

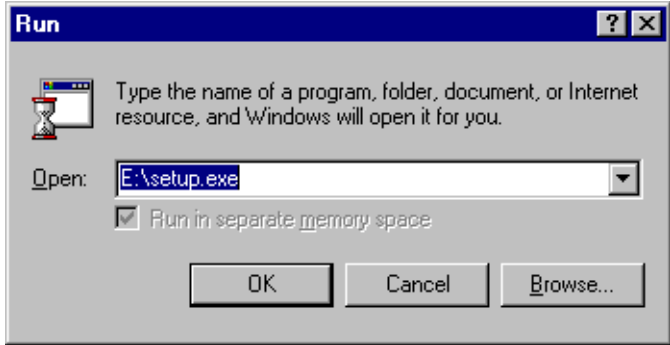
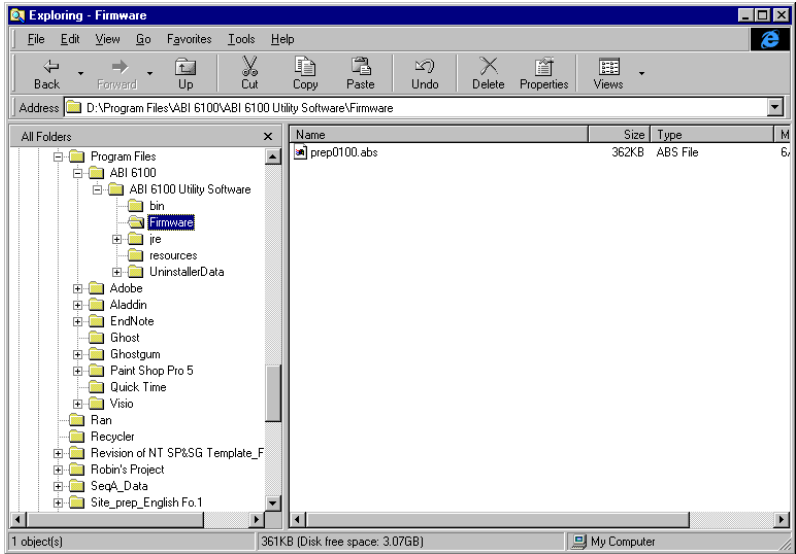
Step	Action
5	<p>Click <b>Next</b>.</p> <p>The Choose Install Folder screen appears.</p> 

To install the Utility Software on your PC: *(continued)*

Step	Action						
6	<p>Choose one of the following:</p> <table><tr><th>If you want to...</th><th>Then...</th></tr><tr><td>choose the default folder (<i>Recommended.</i>)</td><td>click <b>Install</b>.</td></tr><tr><td>choose a different folder</td><td>type a different drive letter (for example) in the window or click <b>Choose</b> to browse for a different folder; then click <b>Install</b>.</td></tr></table> <p>The InstallAnywhere program installs the Utility Software on your hard drive and then displays the Install Complete screen.</p> 	If you want to...	Then...	choose the default folder ( <i>Recommended.</i> )	click <b>Install</b> .	choose a different folder	type a different drive letter (for example) in the window or click <b>Choose</b> to browse for a different folder; then click <b>Install</b> .
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7	<p>Click <b>Done</b>.</p> <p>The program displays “Cleaning Up” and creates an ABI6100 icon on your desktop.</p>						
8	<p>Remove the Utility Software CD from your CD drive and put it in a safe place.</p>						


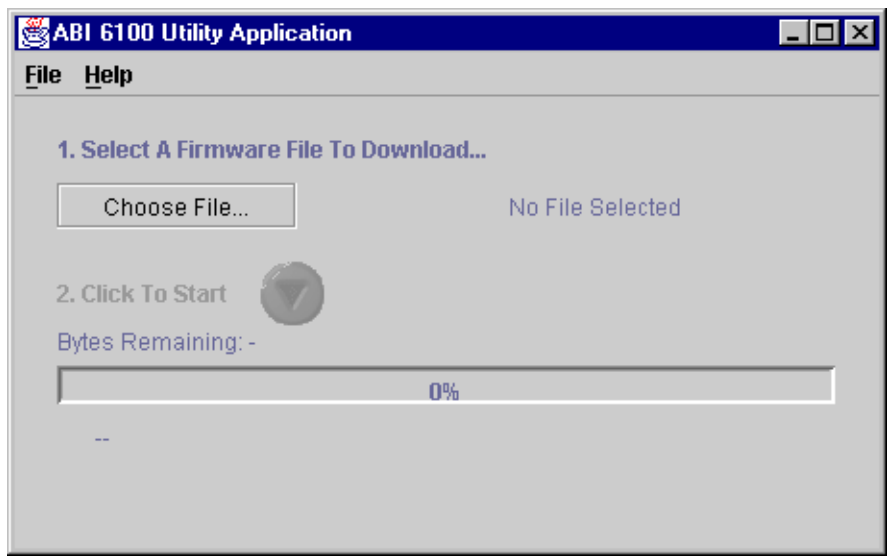
## Copying Firmware

To copy the firmware file to your PC:

Step	Action
1	Insert the Firmware CD in your PC's CD drive and close the drive door.
2	<p>Choose <b>Start &gt; Run</b>.</p> <p>The Run window appears.</p> 
3	Click <b>Browse</b> .
4	Click the firmware file (e.g., prep0100.abs) to select it (the only file on the CD), then press <b>Ctrl-C</b> to copy it.
5	Close the Browse window and the Run window.
6	Choose <b>Start &gt; Programs &gt; Windows Explorer</b> .
7	<p>Locate the folder where you installed the Utility Software. If you used the default setting, it was</p> <p>C:\Program Files\ABI6100\ABI 6100 Utility Software</p>
8	Click the <b>Firmware</b> folder to select and open it.
9	<p>Press <b>Ctrl-V</b> to paste the firmware file (e.g., prep0100.abs) in the Firmware folder.</p>  <p><b>IMPORTANT</b> Do not rename the firmware file.</p>
10	Remove the Firmware CD from your CD drive and put it in a safe place.

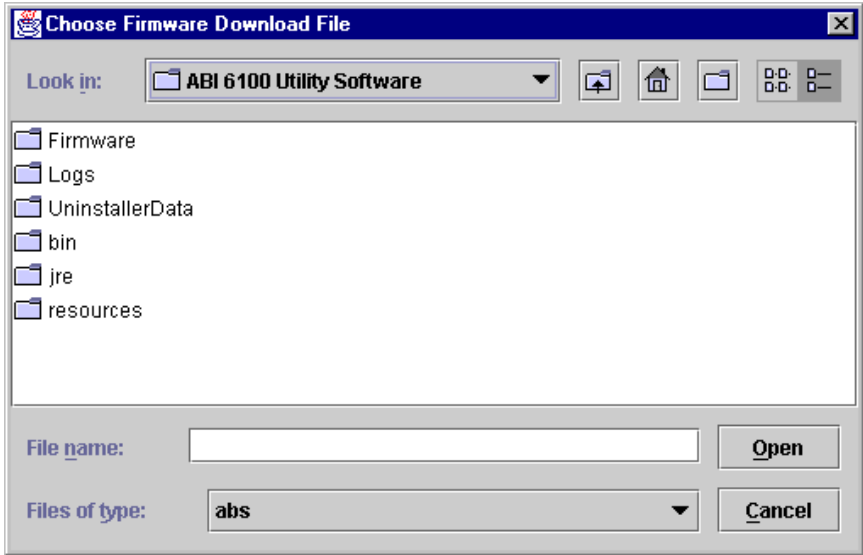
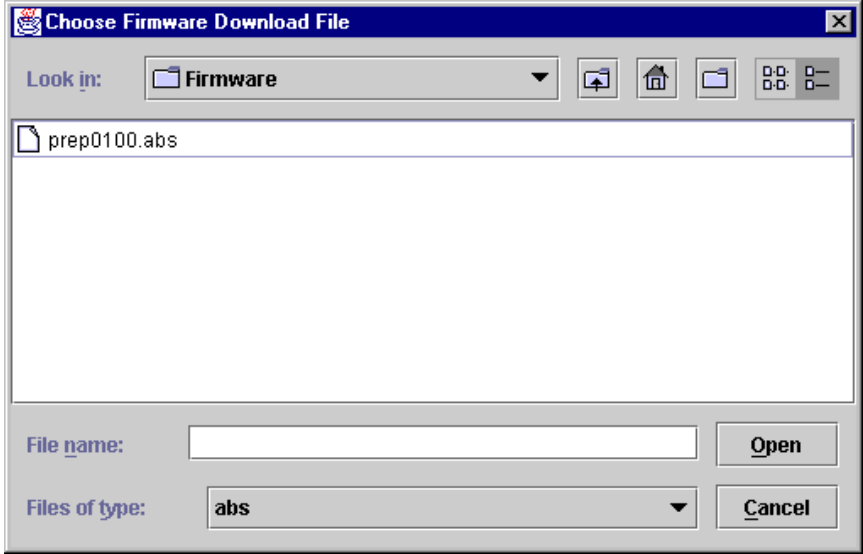
## Upgrading Firmware

**Procedure** To upgrade the firmware on the 6100 prepstation:

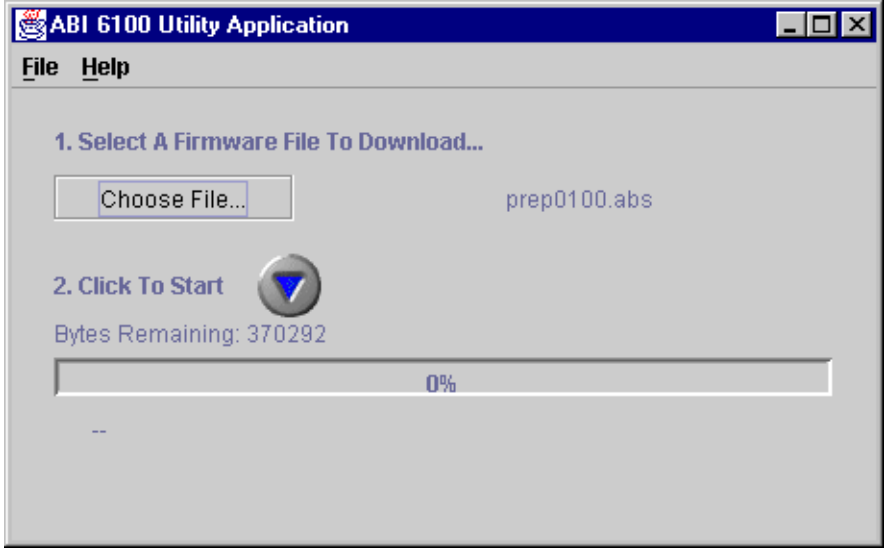
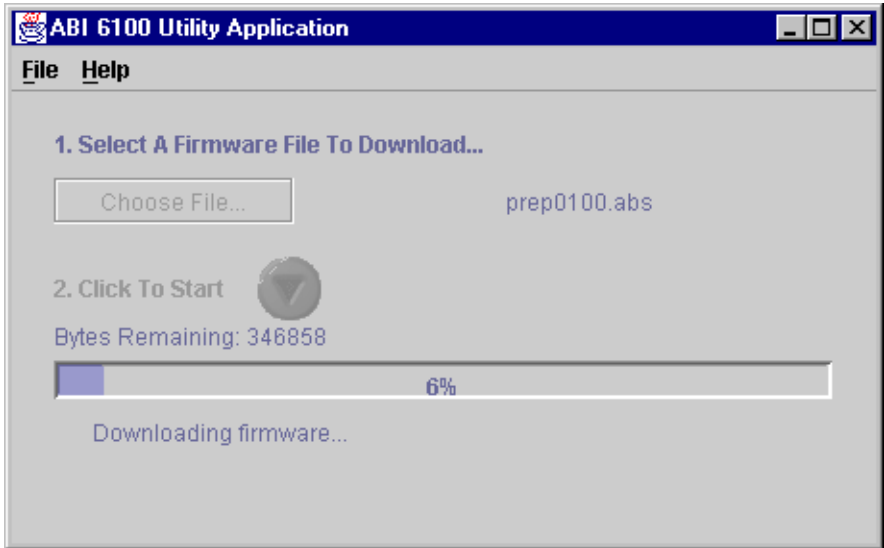
Step	Action
1	Ensure that: <ul style="list-style-type: none"><li>◆ The 6100 prepstation's power is on</li><li>◆ The procedures in "Preparing for a Firmware Upgrade" on page 11-2 have been performed</li></ul>
2	Close all programs running on your PC.
3	<p>On your PC desktop double-click the ABI6100 icon.</p> <div><p>ABI6100 1.0X</p></div> <p>The Utility Application screen appears.</p> <div></div>




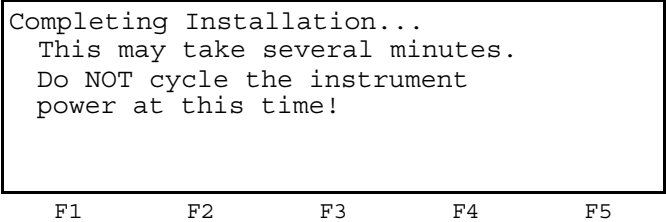
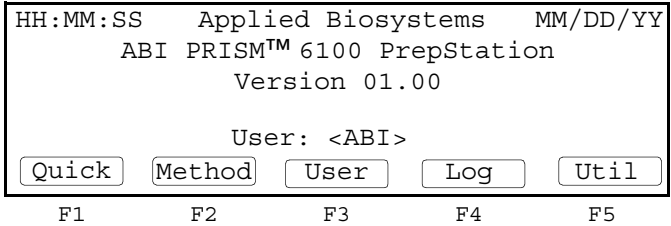
To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
4	<p>Click <b>Choose File</b>.</p> <p>The Choose Firmware Download File screen appears.</p> 
5	<p>Double-click the Firmware folder icon.</p> <p>The firmware file (e.g., prep0100.abs) is listed on the screen.</p> 

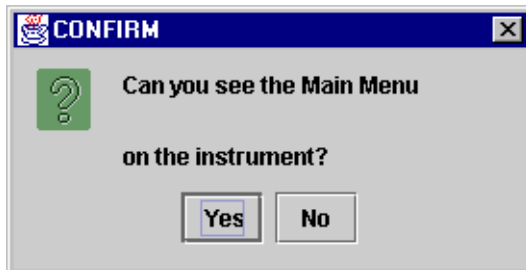
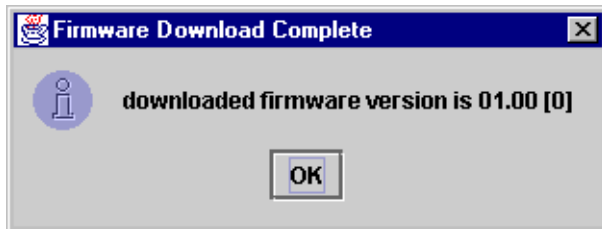
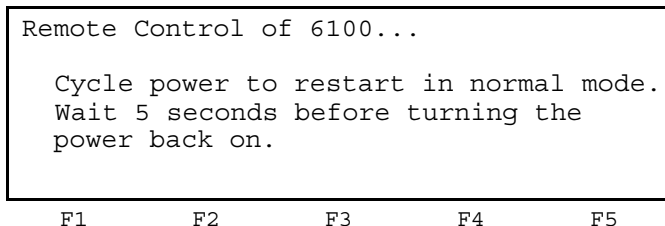
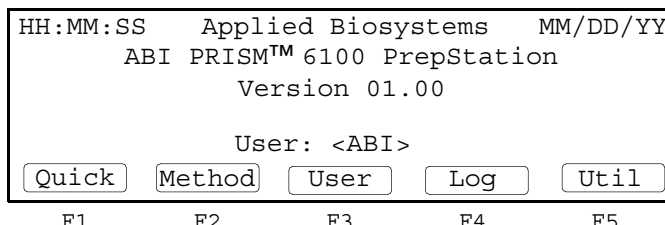
To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
6	<p>Click the firmware file to highlight it, then click <b>Open</b>.</p> <p>The Utility Application screen appears again with the selected file name displayed.</p> 
7	<p>Click the <b>Start</b> button, which turns green as you get your cursor close to it.</p> <p>The Utility Application downloads the firmware to the 6100 prepstation. On the screen the Bytes Remaining count down. The scroll bar moves at a uniform rate, so you can judge how long the download will take. On the 6100 prepstation the LED at the rear of the instrument flashes green quickly.</p> 

To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
8	<p>Wait while the firmware completes the installation.</p> <p>The Completing Installation screen appears.</p>  <p><b>IMPORTANT</b> Do not turn the power off on the 6100 prepstation. Doing so will cause you to lose your methods, users, and preferences.</p> <p>The 6100 prepstation displays its Completing Installation screen.</p>  <p>Then it displays the main menu.</p> 

To upgrade the firmware on the 6100 prepstation: *(continued)*

Step	Action
9	<p>When you can see the main menu on the 6100 prepstation, the download is complete. Check to be sure that the main menu is visible. When it is, click <b>OK</b>. The Confirm screen appears.</p>  <p>The CONFIRM dialog box has a blue title bar with the word 'CONFIRM' and a close button. It contains a green question mark icon, the text 'Can you see the Main Menu on the instrument?', and two buttons: 'Yes' and 'No'.</p>
10	<p>Check again to be sure that the main menu is visible. When it is, click <b>Yes</b>. The Firmware Download Complete screen appears.</p>  <p>The Firmware Download Complete dialog box has a blue title bar with the text 'Firmware Download Complete' and a close button. It contains a blue information icon, the text 'downloaded firmware version is 01.00 [0]', and an 'OK' button.</p>
11	Click <b>OK</b> .
12	<p>View the screen on the 6100 prepstation.</p>  <p>The screen displays the text 'Remote Control of 6100...' followed by instructions: 'Cycle power to restart in normal mode. Wait 5 seconds before turning the power back on.' At the bottom, there are five function keys labeled F1, F2, F3, F4, and F5.</p>
13	<p>Power off the 6100 prepstation, wait 5 seconds, then turn the power back on. The main menu appears, showing the new firmware version.</p>  <p>The main menu screen displays the following information: 'HH:MM:SS Applied Biosystems MM/DD/YY', 'ABI PRISM™ 6100 PrepStation', 'Version 01.00', and 'User: &lt;ABI&gt;'. At the bottom, there are five buttons labeled 'Quick', 'Method', 'User', 'Log', and 'Util', each corresponding to a function key (F1-F5).</p>
14	On the PC, choose <b>File &gt; Exit</b> to close the Utility Application.

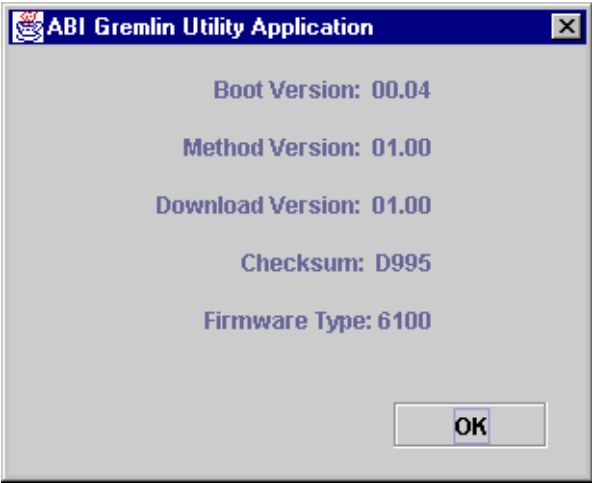
# Troubleshooting Upgrade Problems

**Overview** The following topics may help you troubleshoot any firmware upgrade problems:

Topic	See Page
Viewing Firmware Information	11-12
Error Messages Table	11-14
Troubleshooting Table	11-14
About the LED	11-15
About Downgrading	11-15

**Viewing Firmware Information** When you have set up the PC and 6100 prepstation and are ready to download firmware, the PC queries the instrument as to what versions it is running before the download actually begins. You can view this information.

To view firmware information:

Step	Action
1	<p>After step 3 on page 11-7, in the Utility Application choose <b>File &gt; Get Firmware Info</b>.</p> <p>The following screen appears.</p>  <p>The screenshot shows a dialog box titled "ABI Gremlin Utility Application". It contains the following text: "Boot Version: 00.04", "Method Version: 01.00", "Download Version: 01.00", "Checksum: D995", and "Firmware Type: 6100". There is an "OK" button at the bottom right.</p>

To view firmware information: *(continued)*

Step	Action																		
2	<p>View the information on the screen.</p> <table border="1"> <thead> <tr> <th>Field</th><th>Explanation</th></tr> </thead> <tbody> <tr> <td>Boot Version</td><td>Version number of the boot loader firmware currently running. This firmware resides in a Flash ROM on the system board. It is responsible for checking the validity of the application firmware, and, if necessary, restoring it from Flash or the firmware download serial port.</td></tr> <tr> <td>Method Version</td><td>Version of methods that is running on the 6100 prepstation. It should always be the same as the Download Version unless there are problems in the system. If this field is '00.00', then the methods were lost or corrupted.</td></tr> <tr> <td>Download Version</td><td>Version number of the firmware application currently running. This firmware is downloaded to the system through the firmware download serial port. If this field is '??.??', the application is not available.</td></tr> <tr> <td>Checksum</td><td>This checksum serves as a check for the application firmware to ensure that the correct firmware is running. It is a double-check in case the application version reported is misleading or incorrect. If this field is blank, the bootloader is running.</td></tr> <tr> <td>Firmware Type</td><td> <table border="1"> <thead> <tr> <th>If the Firmware Type is...</th><th>Then...</th></tr> </thead> <tbody> <tr> <td>6100</td><td>the application firmware is running on the 6100 prepstation.</td></tr> <tr> <td>BOOT</td><td>the bootloader is running on the 6100 prepstation. This means that the application firmware was lost due to a hardware error or system error. No screens will be showing on the 6100 prepstation. The LED at the instrument's rear will be blinking at the rate of 2 blinks/second.</td></tr> </tbody> </table> </td></tr> </tbody> </table>	Field	Explanation	Boot Version	Version number of the boot loader firmware currently running. This firmware resides in a Flash ROM on the system board. It is responsible for checking the validity of the application firmware, and, if necessary, restoring it from Flash or the firmware download serial port.	Method Version	Version of methods that is running on the 6100 prepstation. It should always be the same as the Download Version unless there are problems in the system. If this field is '00.00', then the methods were lost or corrupted.	Download Version	Version number of the firmware application currently running. This firmware is downloaded to the system through the firmware download serial port. If this field is '??.??', the application is not available.	Checksum	This checksum serves as a check for the application firmware to ensure that the correct firmware is running. It is a double-check in case the application version reported is misleading or incorrect. If this field is blank, the bootloader is running.	Firmware Type	<table border="1"> <thead> <tr> <th>If the Firmware Type is...</th><th>Then...</th></tr> </thead> <tbody> <tr> <td>6100</td><td>the application firmware is running on the 6100 prepstation.</td></tr> <tr> <td>BOOT</td><td>the bootloader is running on the 6100 prepstation. This means that the application firmware was lost due to a hardware error or system error. No screens will be showing on the 6100 prepstation. The LED at the instrument's rear will be blinking at the rate of 2 blinks/second.</td></tr> </tbody> </table>	If the Firmware Type is...	Then...	6100	the application firmware is running on the 6100 prepstation.	BOOT	the bootloader is running on the 6100 prepstation. This means that the application firmware was lost due to a hardware error or system error. No screens will be showing on the 6100 prepstation. The LED at the instrument's rear will be blinking at the rate of 2 blinks/second.
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3	Check the <b>Firmware Type</b> field. If the value is BOOT, you must download new firmware																		
4	Click <b>OK</b> to return to the Utility Application screen.																		

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**Error Messages  
Table**

The following table lists firmware upgrade error messages, a description of the message, and recommended action.

Message	Description	Recommended Action
No file selected	Message occurs after you select a file to download.	Switch on the 6100 prepstation power.
Warning! Application detected that your firmware methods are lost.	The Utility Application determined that the methods were lost before it attempted to download new firmware. This may be due to a hardware error or a system error.	◆ Download new firmware. ◆ If the problem persists, contact Technical Support.
Warning! You are trying to download an older version. User developed methods will be deleted. Are you SURE you want to do this? Yes/No	The firmware version you are attempting to download is older than the version currently running on the 6100 prepstation.	See "About Downgrading" on page 11-15.

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**Troubleshooting  
Table**

The following table lists the problem, possible causes, and a check and/or remedy for troubleshooting the firmware upgrade to the 6100 prepstation.

Problem	Possible Causes	Check and/or Remedy
Method version is '00.00'	Methods on the 6100 prepstation were lost	◆ Download new firmware. ◆ If the problem persists, contact Technical Support.
Communication error: no response from instrument	◆ Serial cable is unplugged or not seated properly ◆ 6100 prepstation power is not on	◆ Check and reseal the serial cable. ◆ Switch on the power.
Communication was broken during a download.	Serial cable was disconnected	a. Check and reseal the serial cable. b. Switch off the power, wait 5 seconds, then switch the power on again. c. Start the download procedure again.

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**About the LED** The green LED at the rear of the 6100 prepstation can provide troubleshooting information, as follows:

Indicator	Meaning
Solid	The application firmware is running OK on the 6100 prepstation
Blinking quickly	Firmware is being downloaded
Blinking at 2 blinks/second	The boot loader is running
No light	The 6100 prepstation is unplugged or a fuse has blown.

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**About Downgrading** Downgrading to an earlier version of firmware is not recommended. However, there may be certain circumstances in your lab that require you to run an earlier firmware version.

If you do downgrade, your users, methods, and preferences will be lost.

To preserve your methods:

Step	Action
1	Before downgrading, print your methods.
2	After downgrading, recreate the methods manually.

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