

Analyze 11.0

# Installation Instructions: Mac

## Installation Instructions

### Mac OS X 10.6+

Welcome to **Analyze 11.0**, a robust, powerful, and practical research software for advanced biomedical imaging visualization, manipulation, and measurement. Analyze features integrated, complementary tools for fully interactive multi-dimensional display, processing, segmentation, registration, and measurement of biomedical imaging modalities including MRI, CT, PET, SPECT, ultrasound, and digital microscopy. It has been designed and carefully programmed to be highly efficient and user-interactive, performing powerful 3-D image processing and display operations in seconds. The applications of Analyze are broad in scope, wide in scale, and penetrating in impact.

#### Table of Contents

<b>I. Installing Analyze 11.0 on Mac Systems .....</b>	<b>3</b>	<b>IV. Running Analyze 11.0.....</b>	<b>16</b>
System Requirements .....	3	Running the Analyze Program .....	16
User Privileges.....	3	Add Analyze 11.0 to your Dock.....	16
X11 for Mac OS X 10.6+ .....	3	Analyze Patch Updates .....	16
Uninstalling Previous Versions of Analyze.....	3	<b>V. Analyze Basics .....</b>	<b>17</b>
Analyze 11.0 Installation .....	4	Analyze 11.0 Resources .....	17
<b>II. Analyze Licenses.....</b>	<b>7</b>	Analyze 11.0 Tutorial Data .....	17
BIRlic License Management and License Types .....	7	Analyze 11.0 Image File Format Support.....	17
Analyze License Files .....	7	<b>VI. Analyze Developers Add-On .....</b>	<b>18</b>
Requesting a License File .....	8		
<b>III. Analyze License File Installation .....</b>	<b>9</b>		
Installing a Node-Locked License .....	9		
Installing a Renewal Node-Locked License.....	11		
Installing a Floating License – Server System.....	12		
Installing a Floating License – Client Systems .....	14		
Installing a Renewal Floating License .....	15		

## I. Installing Analyze 11.0 on Mac Systems

### System Requirements

Analyze 11.0 will run on Mac systems with the following minimum configuration:

- Mac OS X 10.6+ with Intel or PowerPC processor
- Network card
- CD-ROM drive
- 512 MB RAM\*
- 24/32-Bit graphics capability
- At least 450 MB disk space

\*Analyze requires RAM equal to twice the size of the data set being processed (e.g. a 256 MB data set requires at least 512 MB of RAM).

### User Privileges

In order to install **Analyze 11.0** you must be logged in as an administrator user. If you do not have administrator privileges please contact your system administrator for help with installing Analyze 11.0.

### X11 for Mac OS X 10.6+

Analyze 11.0 is an X Windows System application and does not run natively on the Mac platform. In order to run Analyze 11.0 on your Mac, you must have the X11 application for Mac OS X installed.

**In Mac OS X 10.6 Leopard, X11 is included in the default installation.** If you did a custom installation of Mac OS X 10.6 Leopard and unchecked X11, you will need to install X11 using your original installation CD and the 'Optional Installs' option.

### Uninstalling Previous Versions of Analyze

Before installing Analyze 11.0, it is recommended to uninstall any previous Analyze versions resident on your system. Otherwise, make sure to choose a new directory for Analyze 11.0 during installation. To uninstall previous versions of Analyze delete the 'BIR' folder in your Applications directory. If you have saved any data in this 'BIR' folder, please be sure to move it before deleting.

## I. Installing Analyze 11.0 on Mac Systems

### Analyze 11.0 Installation

The graphical Installer program included on the Analyze 11.0 installation CD will lead you through the complete Analyze 11.0 installation process (including optional components, such as the AVW Developers Add-On). To begin the installation process:

1. Insert the **Analyze 11.0 Installation CD** (if Analyze 11.0 was downloaded, double-click on the **Analyze\_11.0.dmg**).
2. In the window that opens (figure 1), double-click on the '**Analyze 11.0 Installer**' icon to launch the Analyze 11.0 Installer.
3. The graphical Installer opens to a 'Welcome' screen (figure 2). Click **Next** to begin the Analyze 11.0 installation.
4. **License Agreement:** Please read the End-User License Agreement for AnalyzeDirect Software and select 'I accept' or 'I do not accept'. If you select 'I do not accept', Analyze will not be installed. Click **Next**.

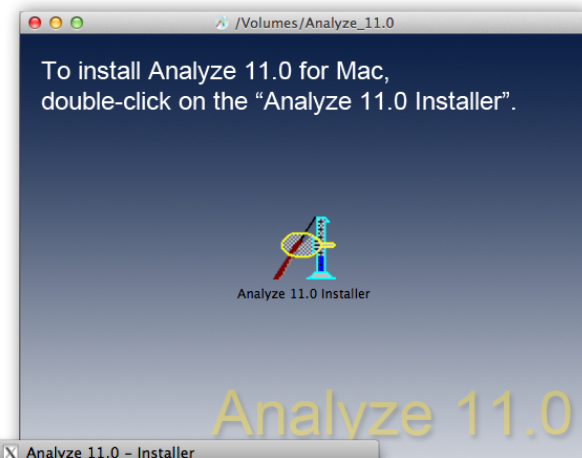


Figure 1

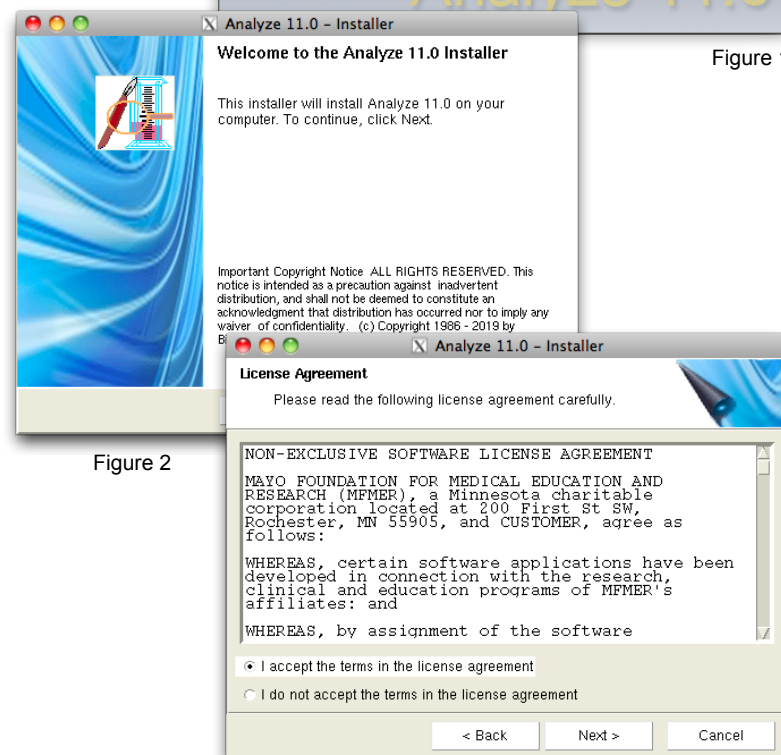


Figure 2

Figure 3

## I. Installing Analyze 11.0 on Mac Systems

5. **Destination Folder:** The default location for installation is **/Applications/BIR**; it is recommended to leave this as the destination folder. Click **Next**.

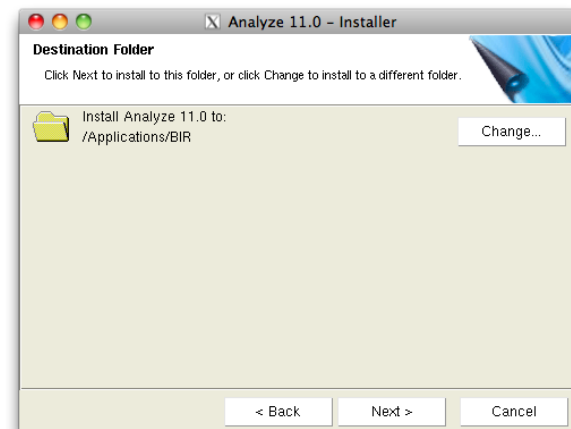


Figure 4

6. **Setup Type:** You may choose from the following setup types:

- Analyze with Tutorials (Typical)
- Analyze Only (Minimum)
- Customized Analyze (Custom)

For most users, it is recommended to choose the **Analyze with Tutorials (Typical)** setup type (figure 5)

Choose the **Customized Analyze (Custom)** setup type (figure 6) if you plan to use the Analyze Developers Add-On, or need to install additional platforms. When you click **Next** and the Customized Analyze setup type is selected, you will be prompted to choose the platform(s) that you wish to install. Following that screen, you will be able to deselect any of the optional components that you do NOT wish to install.

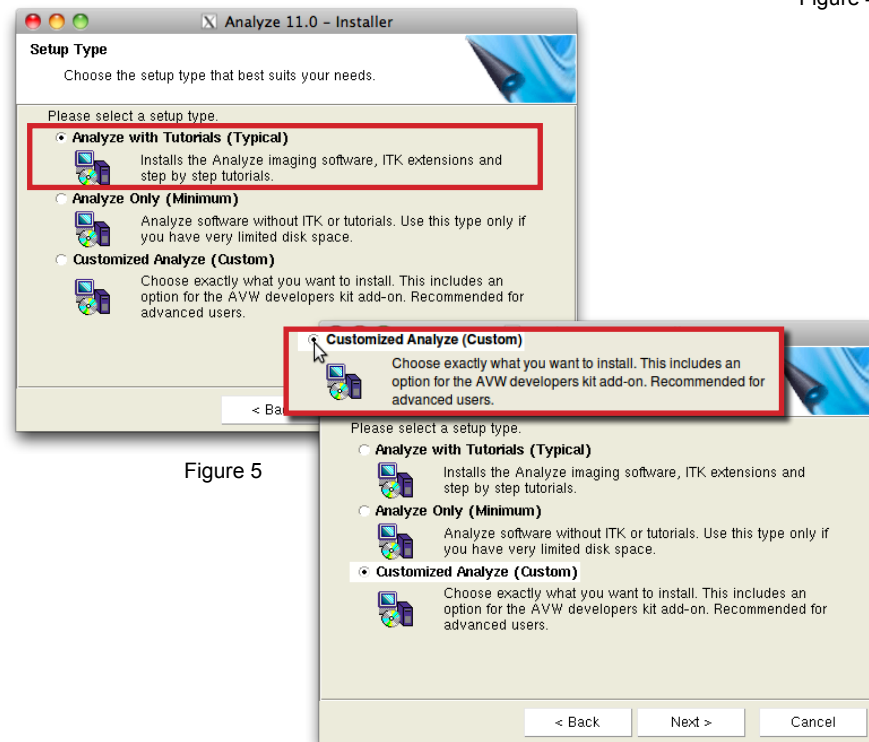


Figure 5

Figure 6

The Analyze Developers Add-On requires a special license file. To learn more about this Add-On, and to find out if your license file provides access, please refer to the Analyze Developers Add-On section at the end of this document.

7. Once you have selected your setup type, click **Next**.

## I. Installing Analyze 11.0 on Mac Systems

8. **Ready to Install the Program:** Verify that the 'Current Settings' are accurate, then click **Install** (figure 7).
9. Analyze 11.0 will now be installed in the specified **Destination Folder**.
10. When the Installer notifies you that installation is complete, click **Finish**. Note that if the **Start License Tool** option is selected, the **BIRlic Tool** will automatically open. To request a license using the BIRlic Tool, please refer to **"Requesting a License File" on page 8**.

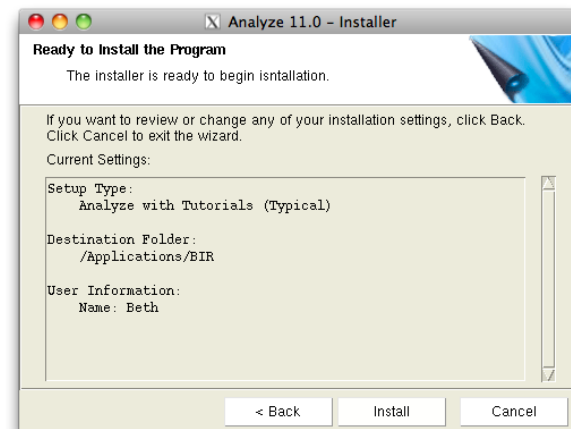


Figure 7

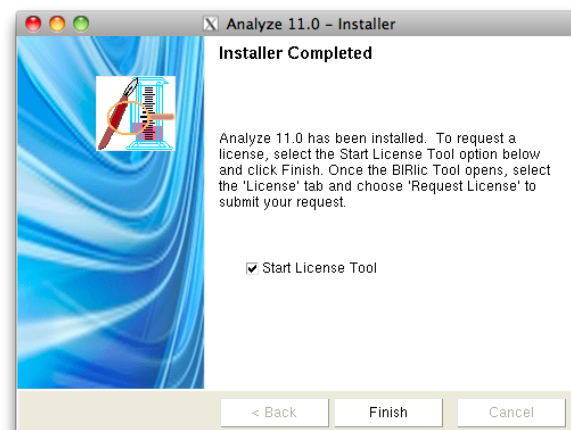


Figure 8

## II. Analyze Licenses

### BIRlic License Management and License Types

Analyze 11.0 uses the **BIRlic license management system** for Analyze validation and runtime license administration. The BIRlic license management software can be found in the **/Applications/BIR/BIRlic-11.0** directory. BIRlic administers two types of Analyze licenses – node-locked and counted floating licenses.

A **node-locked license** will allow Analyze 11.0 to be run on one system only. With a node-locked license, all license file administration is handled local to the specific system.

*note* | All 30-day evaluation license files are node-locked licenses.

A **floating license** allows one system to act as a license server, “floating” the license across a network to a client system. Any client system with access to the license server can check out a license if one is available. Note – if only one floating license is purchased, two or more client system cannot run Analyze simultaneously.

For information on license pricing and options, please contact [sales@analyzedirect.com](mailto:sales@analyzedirect.com).

### Analyze License Files

Your license will be stored in a file named **AnalyzeDirect.lic** that is located in the **/Applications/BIR/BIRlic-11.0/Licenses** directory. During Analyze 11.0 installation, a default AnalyzeDirect.lic license file is placed in this Licenses directory.

**The default AnalyzeDirect.lic license file MUST BE REPLACED by a system-specific license file, otherwise Analyze 11.0 will not run!**

To request a license, please refer to the instructions on the following page under “**Requesting a License**”. Once your license has been generated, you will be notified by AnalyzeDirect via e-mail. You can then retrieve and install your license file using the steps provided for your license type under the “**III. Analyze License File Installation**” on page 7. If you are unsure what type of license you have, or encounter any difficulties with license file installation, please contact [support@analyzedirect.com](mailto:support@analyzedirect.com).

## II. Analyze Licenses

### Requesting a License File

**A system-specific AnalyzeDirect.lic license file must be installed before Analyze 11.0 will run.**

You can obtain this license file from AnalyzeDirect.

In order to generate your license, AnalyzeDirect must receive two pieces of information specific to the computer: 1) the Host Name and 2) the Host ID. The instructions below will explain how to send this information to AnalyzeDirect.

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **/Applications/BIR/bin** directory.
2. The **BIRlic Tool** will open to the **System Info** tab (figure 1).
3. Select the **License** tab in BIRlic Tool (figure 2).
4. Click the **Request License** button.
5. Your **Host Name** and **Host ID** will automatically be populated in the license request form. In order to submit your request, you must enter your **Company**, **Name**, **Email** and **Phone** into the fields provided. The **Comments** field is optional.
6. Click the **Send Request** button.
7. A dialog will appear once your license request is submitted (figure 3). If you are unable to submit a request, please send the information in the license request form, along with your system type, in an e-mail to [validate@analyzedirect.com](mailto:validate@analyzedirect.com).
8. Once AnalyzeDirect receives your license request, a license will be generated, and you will be notified via e-mail. To retrieve and install your license file, please refer to the instructions for your license type (node-locked or floating) in the section that follows this, entitled **"Analyze License File Installation"**.

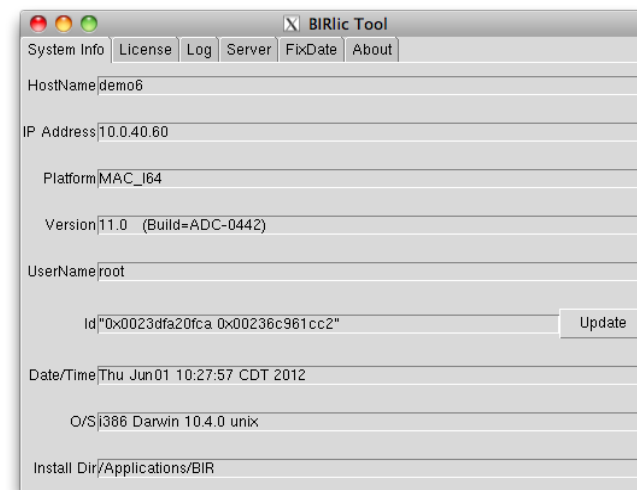


Figure 1

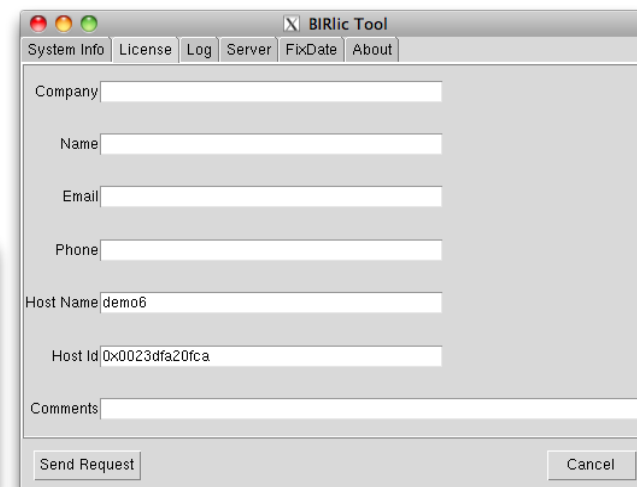


Figure 2

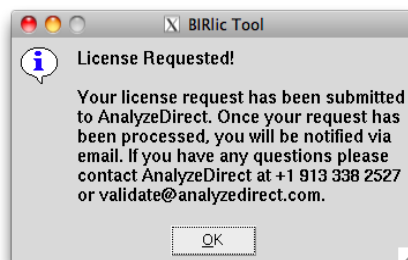


Figure 3



### III. Analyze License File Installation

#### Installing a Node-Locked License

If you have a **node-locked license**, then you can follow these steps to install your license file (once ready to retrieve) and configure the BIRlic license server for automatic startup at system boot. The BIRlic license server handles administration of your node-locked license and must be running in order for you to use Analyze.

*note* | If the BIRlic license server is already running on your system, please refer to the instructions on **page 11** under “**Installing a Renewal Node-Locked License**”.

1. Ensure that you are logged into Mac OS X as an administrator user and that you know the user account password.
2. Then, open a **Terminal** window (**Applications/Utilities/Terminal**).
3. Issue the following command in the Terminal window:

**sudo /Applications/BIR/bin/BIRlicTool**

*tip* | By hitting the <Tab> key as you are partway through typing a directory or file name, you can auto-complete the name in the next part of the path.

4. You will be prompted for a **password** (figure 4). Enter the password for your Mac user account (the screen will remain blank as you type) and hit <Return>.

*note* | If this is the first time you have used the sudo command, you will see a warning message about improper use of the sudo command, proceed to enter your password.

5. The **BIRlic Tool** will open. Select the **License** tab (figure 5).
6. Click the **Auto Retrieve** button [A].
7. Once your license file has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 6).

*note* | If license retrieval is unsuccessful, please contact AnalyzeDirect at [validate@analyzedirect.com](mailto:validate@analyzedirect.com) or +1 913-338-2527.

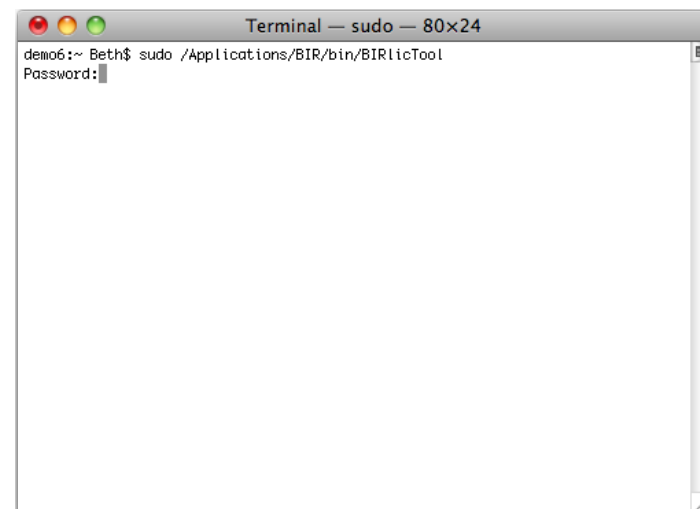


Figure 4



Figure 6

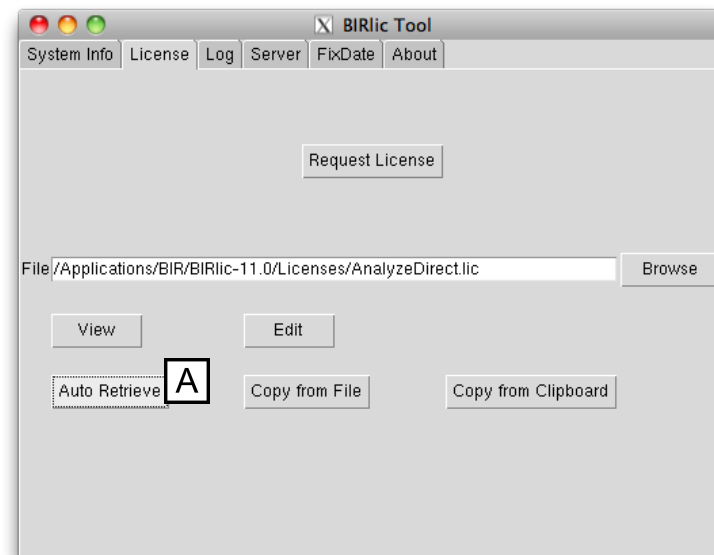


Figure 5

### III. Analyze License File Installation

8. Before you can run Analyze 11.0, you must start the BIRlic license server. To do this, select the **Server** tab in the BIRlic Tool (figure 7).
9. If you have used another version of Analyze on this system, verify that the previous license server has been shutdown by selecting the **Server Status** button [B]. If no license server is running, this will generate a “**Connect Error**”. If the license server is running, then select the **Remove Bootscript** button [C] to shutdown that previous license server and remove its bootscript before proceeding.
10. To configure your system to start the BIRlic license server automatically at startup, click the **Install Bootscript** button [D]. Click **Yes** when asked if you would like to install the bootscript for automatic license server startup on this system (figure 8).
11. Once the bootscript has been installed, a notification window will appear. Click **OK**.
12. To start the BIRlic license server without a system reboot, click **Run Bootscript** [E]. Click **Yes** when asked if you would like to start the bootscript (figure 9).
13. Once the bootscript has been started, a notification window will appear. Click **OK**.
14. Analyze 11.0 should now be ready to run on this system. For instructions on how to run Analyze 11.0, please refer to “**IV. Running Analyze 11.0**” on page 16.

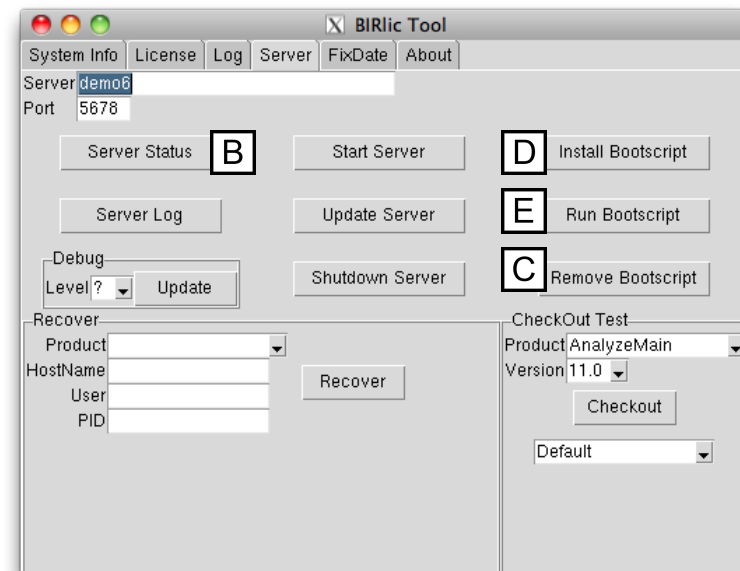


Figure 7

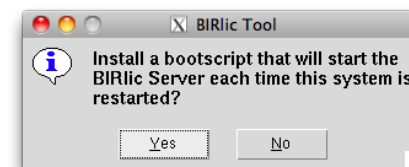


Figure 8

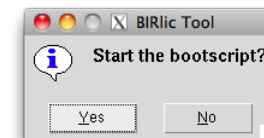


Figure 9

### III. Analyze License File Installation

#### Installing a Renewal Node-Locked License

If you are installing a node-locked license and the BIRlic license server is already running on your system, then you can follow these steps to install your license file once you are notified that it is ready to retrieve.

1. Go to the **/Applications/BIR/bin** folder and double-click on the **BIRlicTool** executable to open the BIRlic Tool.
2. In the BIRlic Tool, select the **License** tab (figure 10).
3. Click the **Auto Retrieve** button [A].
4. Once your license file has been retrieved, a dialog will be returned stating **"Retrieve Successful"** (figure 11).

*note* If license retrieval is unsuccessful, please contact AnalyzeDirect at [validate@analyzedirect.com](mailto:validate@analyzedirect.com) or +1 913-338-2527.

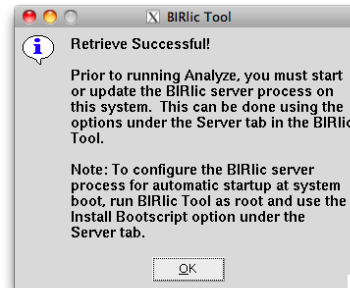


Figure 11

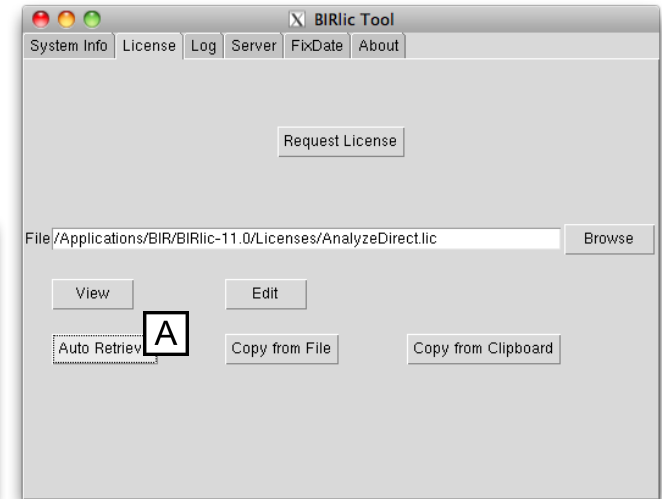


Figure 10

5. Select the **Server** tab in the BIRlic Tool (figure 12).
6. Click the **Update Server** button [B]. Click **Yes** when asked if you would like to update the license file for the server (figure 13).
7. Once the license file has been re-read, a notification window will appear, reporting the number of changes detected, click **OK**.
8. Analyze 11.0 should now be ready to run on this system. For instructions on how to run Analyze 11.0, please refer to **"IV. Running Analyze 11.0"** on page 16.

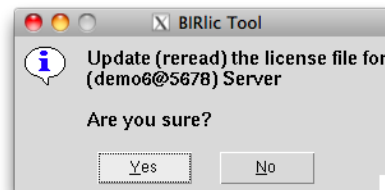


Figure 13

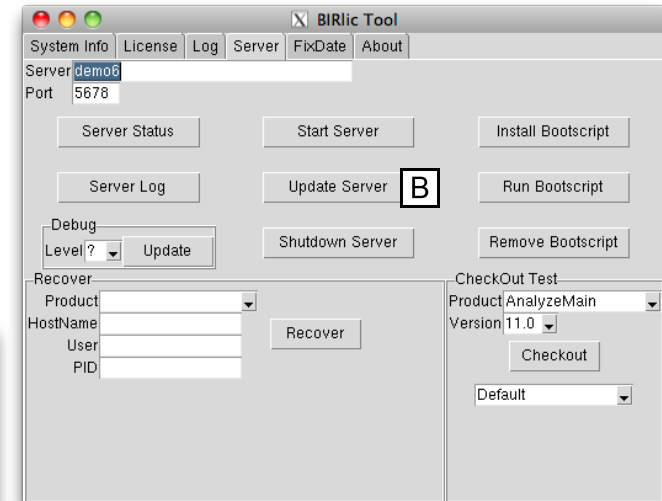


Figure 12

### III. Analyze License File Installation

#### Installing a Floating License – Server System

If you have a **floating license**, then you can follow these steps to install your license file (once ready to retrieve) and configure the BIRlic license server for automatic startup on the **SERVER system**. The BIRlic license server listens for incoming license requests from client systems and must be running in order to administer the floating license.

*note* | If the BIRlic license server is already running on your system, please refer to the instructions on **page 15** under “Installing a Renewal Floating License”.

1. Ensure that you are logged into Mac OS X as an administrator user and that you know the user account password.
2. Then, open a **Terminal** window (**Applications/Utilities/Terminal**).
3. Issue the following command in the Terminal window:

**sudo /Applications/BIR/bin/BIRlicTool**

*tip* | By hitting the <Tab> key as you are partway through typing a directory or file name, you can auto-complete the name in the next part of the path.

4. You will be prompted for a **password** (figure 14). Enter the password for your Mac user account (the screen will remain blank as you type) and hit <Return>.

*note* | If this is the first time you have used the sudo command, you will see a warning message about improper use of the sudo command, proceed to enter your password.

5. The **BIRlic Tool** will open. Select the **License** tab (figure 15).
6. Click the **Auto Retrieve** button [A].
7. Once your license file has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 16).

*note* | If license retrieval is unsuccessful, please contact AnalyzeDirect at [validate@analyzedirect.com](mailto:validate@analyzedirect.com) or +1 913-338-2527.



Figure 14

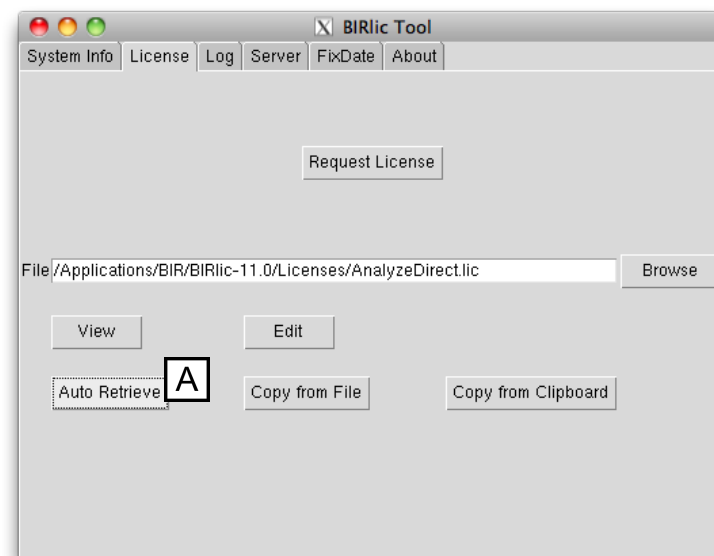


Figure 15



Figure 16

### III. Analyze License File Installation

8. Before any client systems can checkout the floating license, the BIRlic license server must be started on the server system. To do this, select the **Server** tab in the BIRlic Tool (figure 17).
9. If you have used another version of Analyze on this system, verify that the previous license server has been shutdown by selecting the **Server Status** button [B]. If no license server is running, this will generate a “**Connect Error**”. If the license server is running, then select the **Remove Bootscript** button [C] to shutdown that previous license server and remove its bootscript before proceeding.
10. To configure your system to start the BIRlic license server automatically at startup, click the **Install Bootscript** button [D]. Click **Yes** when asked if you would like to install the bootscript for automatic license server startup on this system (figure 18).
11. Once the bootscript has been installed, a notification window will appear. Click **OK**.
12. To start the BIRlic license server without a system reboot, click **Run Bootscript** [E]. Click **Yes** when asked if you would like to start the bootscript (figure 19).
13. Once the bootscript has been started, a notification window will appear. Click **OK**.
14. Analyze 11.0 should now be ready to run on this system. For instructions on how to run Analyze 11.0, please refer to “**IV. Running Analyze 11.0**” on page 16.
15. To configure client systems so that they can checkout the floating license, please refer to the steps on the following page, under “**Installing a Floating License – Client Systems**”.

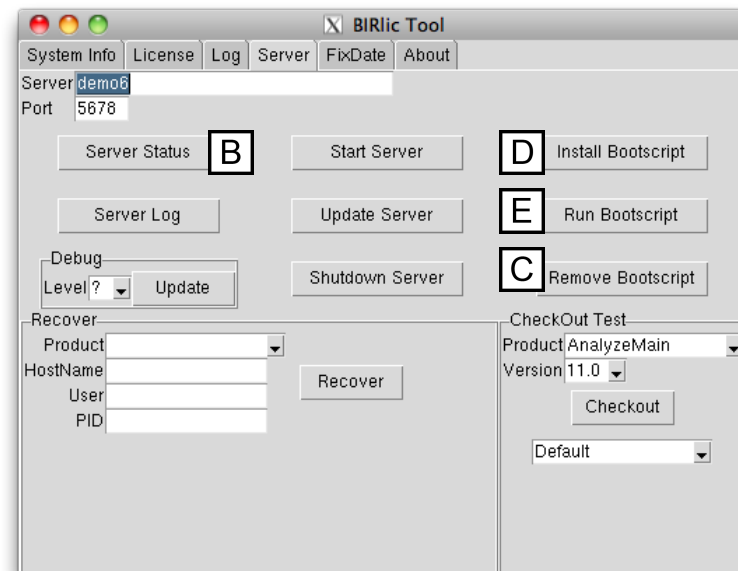


Figure 17

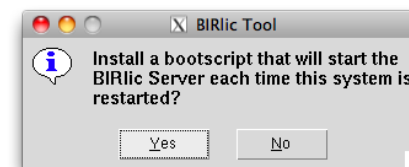


Figure 18

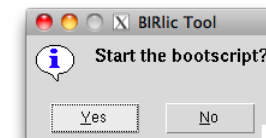


Figure 19

### III. Analyze License File Installation

#### Installing a Floating License – Client Systems

If you have a **floating license**, then you can install the license file on **client systems** using the steps below. Note, the client systems must have Analyze 11.0 installed locally (see “Analyze 11.0 Installation” on page 4). In addition, the floating license server system must have the license file installed and the BIRlic license server process running (see “Installing a Floating License – Server System”).

1. Go to the **/Applications/BIR/bin** folder and double-click on the **BIRlicTool** executable to open the BIRlic Tool.
2. The **BIRlic Tool** will open. Select the **License** tab (figure 20).
3. Click the **Auto Retrieve** button [A].
4. A dialog will be returned telling you that the server does not match the server listed, click **Yes** to confirm that it is a floating license client (figure 21).
5. In the window returned, enter the **Floating Server ID** (figure 22). The Floating Server ID is the Host ID reported in the ‘System Info’ tab of the BIRlic Tool when it is opened on the server system.
6. Once your license has been retrieved, a dialog will be returned stating “**Retrieve Successful**”.
7. No additional configuration is necessary on client systems. You should not start the BIRlic license server on the client systems. For instructions on how to run Analyze 11.0, please refer to “**IV. Running Analyze 11.0**” on page 16.

If at any point you encounter difficulties getting your floating license server or client systems up and running, please contact [support@analyzedirect.com](mailto:support@analyzedirect.com).

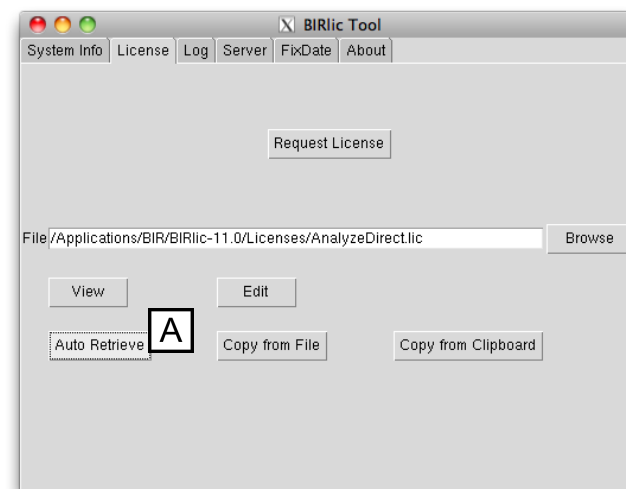


Figure 20

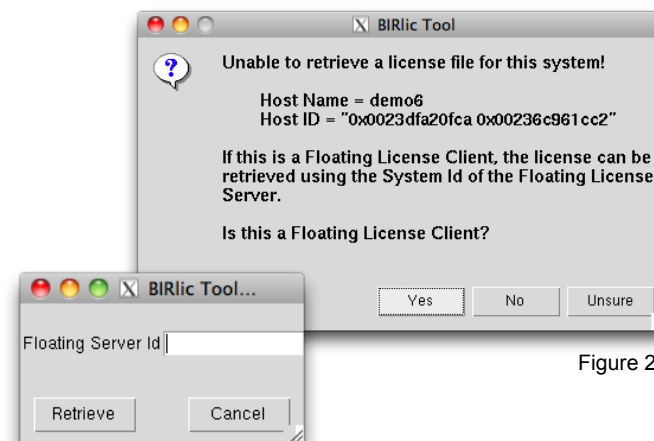


Figure 21

Figure 22

### III. Analyze License File Installation

#### Installing a Renewal Floating License

If you are installing a floating license on the **SERVER system** and the BIRlic license server is already running, then you can follow these steps to install your license file and update the BIRlic process with the changes.

1. Go to the **/Applications/BIR/bin** folder and double-click on the **BIRlicTool** executable to open the BIRlic Tool.
2. In the BIRlic Tool, select the **License** tab (figure 23).
3. Click the **Auto Retrieve** button [A].
4. Once your license file has been retrieved, a dialog will be returned stating **"Retrieve Successful"** (figure 24).

*note* If license retrieval is unsuccessful, please contact AnalyzeDirect at [validate@analyzedirect.com](mailto:validate@analyzedirect.com) or +1 913-338-2527.

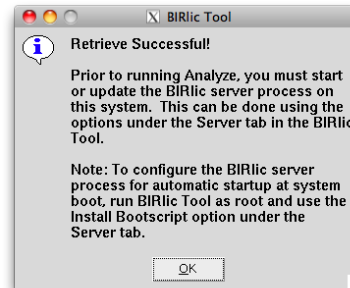


Figure 24

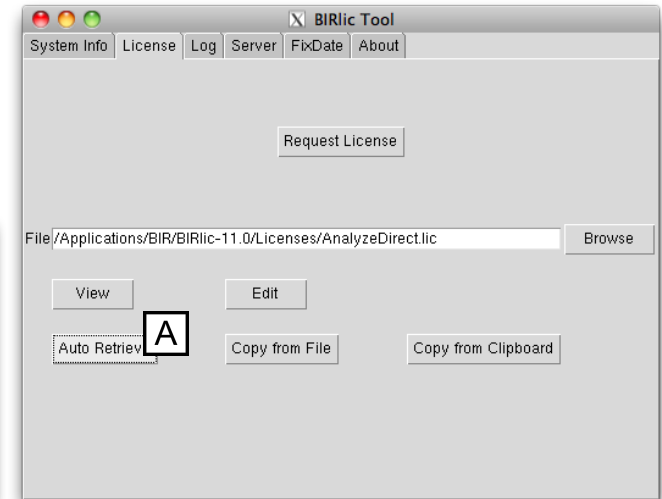


Figure 23

5. Select the **Server** tab in the BIRlic Tool (figure 25).
6. Click the **Update Server** button [B]. Click **Yes** when asked if you would like to update the license file for the server (figure 26).
7. Once the license file has been re-read, a notification window will appear, reporting the number of changes detected, click **OK**.
8. Analyze 11.0 should now be ready to run on this system. To install the renewal license on **client systems**, please follow the steps on **page 14** under **"Installing a Floating License – Client Systems"**.



Figure 26

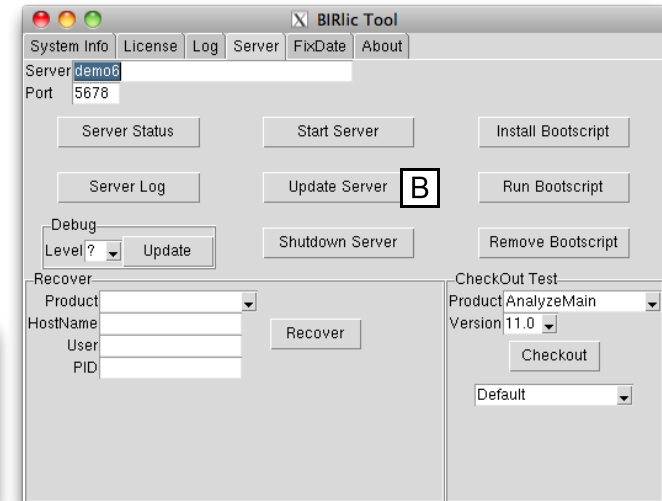


Figure 25

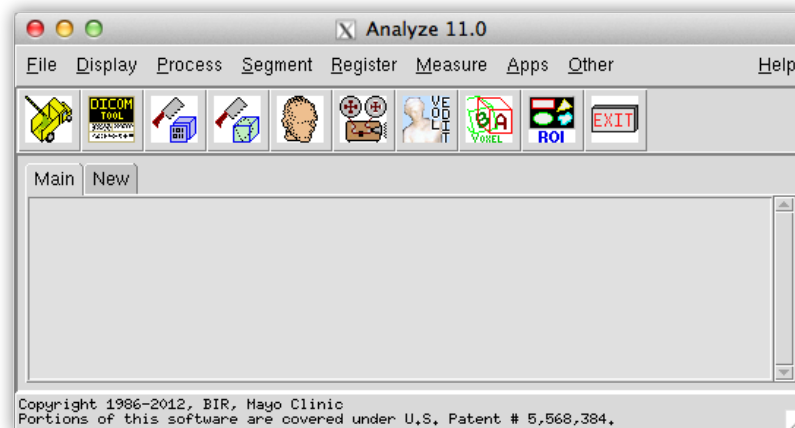
## IV. Running Analyze 11.0

### Running the Analyze Program

Once you have installed Analyze 11.0 and your AnalyzeDirect.lic license, you are ready to run the program.

1. To open Analyze 11.0, go to your **/Applications/BIR/bin** folder and double-click on the **Analyze** executable.
2. The first time Analyze 11.0 opens, the **End-User License Agreement for AnalyzeDirect Software** will appear. Please read the agreement carefully and then click **I Accept** or **Exit**. Note, if you click 'Exit' Analyze 11.0 will not open.
3. Once the End-User License Agreement has been accepted, **Analyze 11.0** will open.

*note* | If Analyze fails to open, please contact [support@analyzedirect.com](mailto:support@analyzedirect.com) or +1 913-338-2527.



### Add Analyze 11.0 to your Dock

To create a shortcut to **Analyze 11.0** on your Dock, drag the Analyze executable file from the **/Applications/BIR/bin** directory and drop it on the right-hand side of the Dock divider (the same side as the Trash Can).

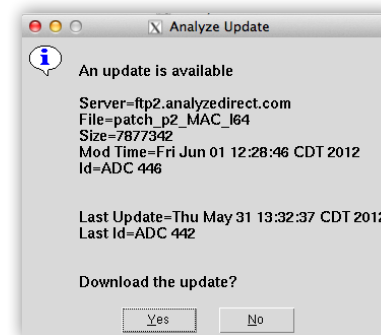


### Analyze Patch Updates

As with most software products, the process of bug fixing and minor maintenance between versions is an ongoing process. Analyze has all such fixes available in the form of a patch.

To download Analyze 11.0 patch updates, select **Help > Analyze Update** from the main Analyze window. Once the patch has been downloaded, you can install it by exiting and restarting Analyze.

It is recommended to check for new patch updates once each month.





## V. Analyze Basics

### Analyze 11.0 Resources

There are several excellent resources available to help you get started with Analyze 11.0.

To quickly learn the basics of Analyze, we recommend that you work through the **Analyze 11.0 Essential Training Guide** – found on the silver **Resources CD** included with your software package. The Essential Training Guide contains a series of short exercises covering the most commonly used Analyze features and functions.

The **Analyze Tutorials** (optional component during installation) and the **Analyze User's Guide**, both available from the **Help menu** in the main Analyze window, are other excellent resources, providing detailed information about the Analyze modules.

**Analyze Demos** (help movies) can be also be selected from the Help menu. This option will direct you to a web page with a list of specific Help Movies.

### Analyze 11.0 Tutorial Data

The tutorial data used in the Analyze 11.0 Essential Training Guide exercises and the Analyze Tutorials can be found on the silver Resources CD. To install the tutorial data from the Resources CD, do the following:

1. Insert the silver **Resources CD** into your computer.
2. Open **Analyze 11.0**. From the main Analyze window select Help > Analyze Tutorials.
3. In the Tutorials window, click the **Install Tutorial Data** button.
4. In the window returned, specify the file path to the **TutorialData** folder on the Resources CD (e.g. /Volumes/Resources/TutorialData).
5. Click **Install**. The tutorial data will be copied into the **/Applications/BIR/images/TutorialData** directory.

### Analyze 11.0 Image File Format Support

*Please note:* Analyze does not automatically configure all supported file formats. This keeps module startup time to a minimum, loading only those image formats that you need to use with Analyze for your purposes. To configure and load all supported file formats in Analyze, use the Import/Export module's External Libraries tool. Instructions on how to use the External Libraries tool can be found in the Essential Training Guide, **Exercise 3: Switching on Support for Additional Formats**.

## VI. Analyze Developers Add-On

The **Analyze Developers Add-On** allows software developers to extend the capabilities of Analyze by developing their own macros and modules, using the **AVW** (A Visualization Workshop) image function library upon which Analyze is built. The library is robust and includes over 600 imaging functions that can be called at a C-language level.

Note – the Analyze Developers Add-On assumes you are familiar with programming.

To get access to AVW development capabilities, you must select the '**Custom**' install during Analyze 11.0 installation. The Developers Add-On also requires a special **AnalyzeDirect.lic** license file that will allow access to the AVW development capabilities. All 30-day evaluation license files provide access to the Developers Add-On.

If you already own an Analyze license and would like to evaluate the Developers Add-On, please contact [sales@analyzedirect.com](mailto:sales@analyzedirect.com).

During the 'Custom' install of Analyze 11.0, the AVW Programmers Guide, AVW Reference Manual, and AVW Quick Reference Guide should have been installed in the **/Applications/BIR/AVW-11.0/Manuals** directory.

The best place to start practicing with the AVW functions is with the examples provided in the **/Applications/BIR/AVW-11.0/Extras** directory. This directory contains a number of example source files, both in C and in Tcl/Tk, for common Analyze imaging tasks (like rendering, segmentation, etc.). Note that while Analyze uses Tcl/Tk, the AVW library is interface-independent, allowing developers to work in almost any development environment. If you do want to know more about Tcl programming, we recommend starting with the 'Bible' of Tcl/Tk - "Practical Programming in Tcl and Tk" by Brent Welch. This comes with a CD that you can load on to your computer, which includes a full Tcl/Tk implementation and many examples.

The .tcl scripts contained in the **/Applications/BIR/AVW-11.0/Extras** subdirectories are full source code scripts that can be run, however, you will need to setup the Tcl/Tk environment such that these scripts can find the Tcl/Tk files needed to execute. The `develop_env.bat` script included in the **/Applications/BIR/AVW-11.0** directory provides an example of a script that can be used to set these development environment variables.