

Analyze 11.0

Installation Instructions: UNIX/Linux

Installation Instructions UNIX/Linux

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.

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I. Installing Analyze 11.0 on UNIX/Linux Systems

System Requirements

Supported Platforms and System-Specific Disk Space Requirements:

System Manufacturer	Required Disk Space	Operating System
AMD64 Linux (64-bit)	49 MB	CentOS 4+ (or compatible)
Mac Intel (32-bit)	41 MB	OS X 10.5+
Mac Intel (64-bit)	62 MB	OS X 10.5+
Mac PowerPC (32-bit)	41 MB	OS X 10.5+
Sun Microsystems (32-bit)	44 MB	Solaris 10+
Sun Microsystems (64-bit)	53 MB	Solaris 10+
PC (Intel) Linux (32-bit)	45 MB	CentOS 4+ (or compatible)
Intel Itanium 2 Linux (64-bit)	91 MB	SuSE 9+ (or compatible)

+ Later operating systems supported if compatible with the OS listed above.

Analyze also requires the following minimum system configuration:

- 200 MHz or faster processor
- Network card
- CD-ROM drive
- 2 GB RAM*
- 24/32-bit graphics capability

*Analyze requires RAM equal to twice the size of the data set being processed.

Disk Space Requirements - The Analyze 11.0 Installation CD contains software for all supported system platforms, so total disk space requirements for combinations of several components listed in the tables above will need to be computed. All installations require the appropriate system-specific files listed in the first table, as well as the Analyze Root component. Be certain that the system on which you will be installing Analyze 11.0 has adequate disk space available.

Operating System Requirements - The supported operating system levels are shown in the first table. The operating version you are using is normally indicated in the system banner when you log into the system. **If you are running an earlier version of the operating system than is indicated for your system type, Analyze 11.0 may not function.**

Additional disk space requirements:

Section	Required Disk Space	Options
Analyze Root	50 MB	Mandatory
Analyze Tutorials	31 MB	Optional
ITK Runtime Extension	22 MB	Optional
AVW Development Environment	36 MB	Optional
ITK Development Environment	36 MB	Optional

I. Installing Analyze 11.0 on UNIX/Linux Systems

System Preparation

Uninstall Previous Versions of Analyze - If there is another version of Analyze installed on the system on which Analyze 11.0 will be installed, it is recommended to uninstall the previous version. Otherwise, make sure to choose a new installation directory for Analyze 11.0. To uninstall the previous version, mount the Analyze 11.0 Installation CD and follow the steps under “Running the Analyze 11.0 Install Script”, selecting the ‘u’ option when prompted by the install script.

Mount the Analyze 11.0 Installation CD

The Analyze 11.0 Installation CD contains three main components: the complete Analyze distribution for all supported systems, including ancillary files, an interactive installation script called *install*, and an executable for a graphical *Installer*.

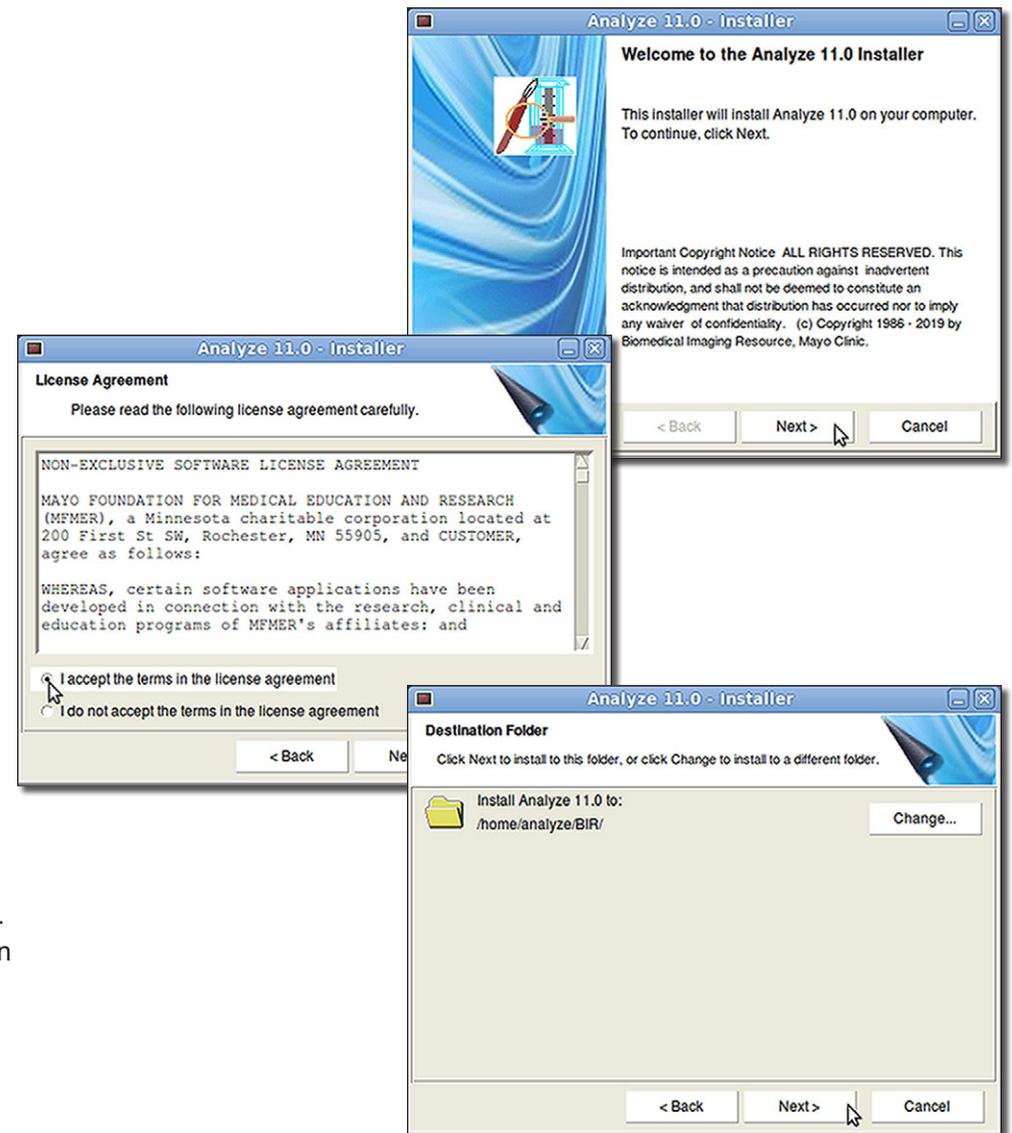
To run *install* or *Installer* you must first **mount the Analyze 11.0 Installation CD**. The Installation CD contains a mountable file system (HSFS) that is supported by most systems (that support the ISO 9660 format with Rock Ridge extensions). Each of the different system types supported by Analyze 11.0 provide various mechanisms for mounting a CD on a directory. Some systems may automatically mount the CD on a specific directory, invoking a file manager window in association with the inserted CD. Other systems will require you to mount the CD manually, specifying the CD device and a directory on which to do the mount. Consult your systems administrator or system documentation for information on mounting a CD.

I. Installing Analyze 11.0 on UNIX/Linux 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. Navigate to the Analyze 11.0 Installation CD using the file manager.
2. Double click on the **Installer** program located on the CD.
3. The graphical Installer opens to a '**Welcome**' screen. 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**.
5. **Destination Folder:** The default location for installation is **home/BIR**. Select the **Change** button to specify an alternative installation location for Analyze 11.0. Then, click **Next**.



I. Installing Analyze 11.0 on UNIX/Linux Systems

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

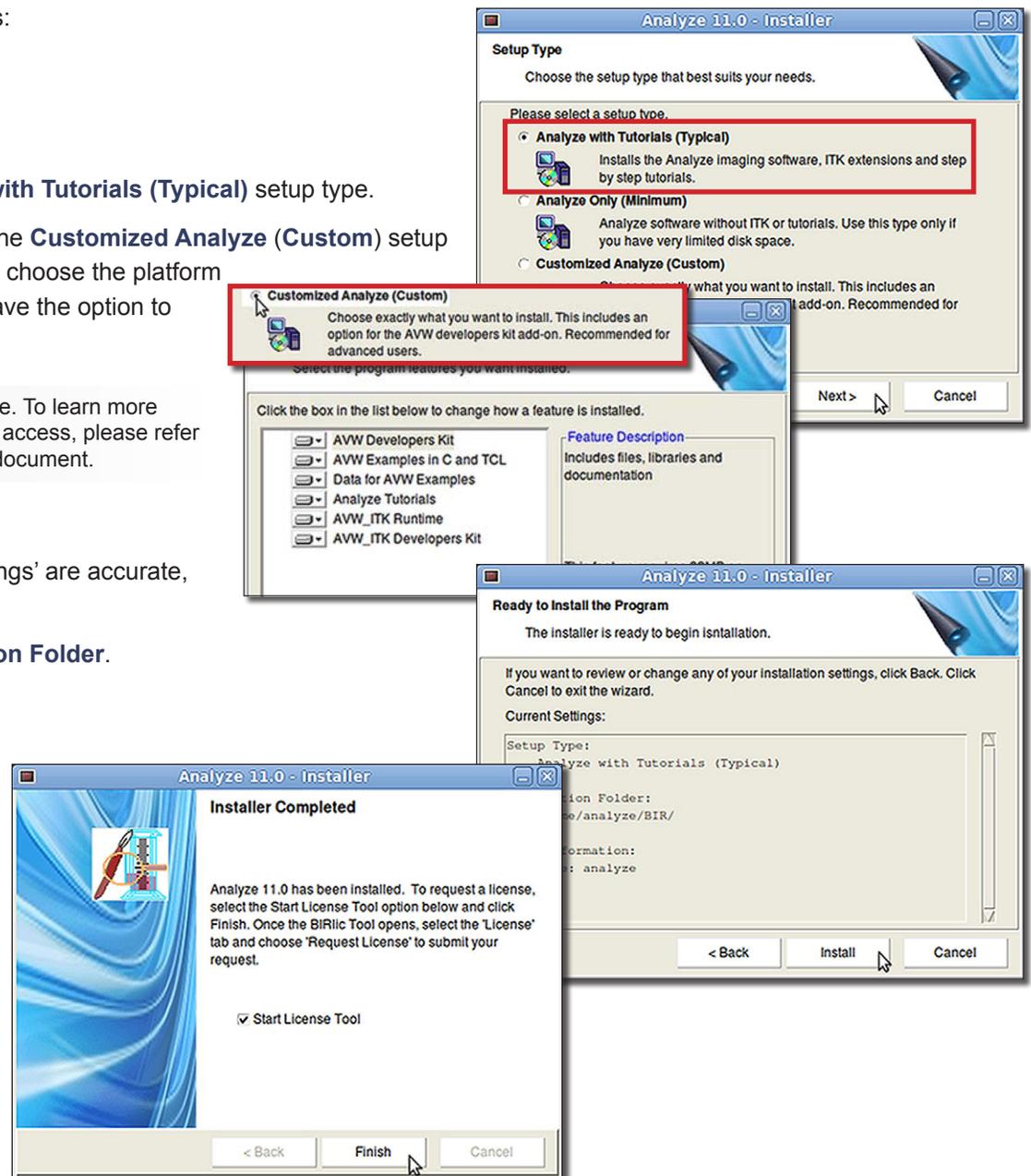
- Analyze with Tutorials (Typical)
- Analyze Only (Minimum)
- Customized Analyze (Custom)

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

If you plan to use the Analyze Developers Add-On, choose the **Customized Analyze (Custom)** setup type and click **Next**. The screen that follows will allow you to choose the platform of the optional components. Once you click **Next**, you will have the option to deselect any components you do NOT wish to install.

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**.
8. **Ready to Install the Program:** Verify that the 'Current Settings' are accurate, then click **Install**.
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**.



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 **\$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.

Analyze License Files

Your license will be stored in a file named **AnalyzeDirect.lic** that is located in the **\$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 . If you are unsure what type of license you have, or encounter any difficulties with license file installation, please contact 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 **\$BIR/bin** directory (where \$BIR is the path to the directory where Analyze is installed, e.g. /home/BIR).
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.
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) found under “**III. Analyze License File Installation**” on page 9.

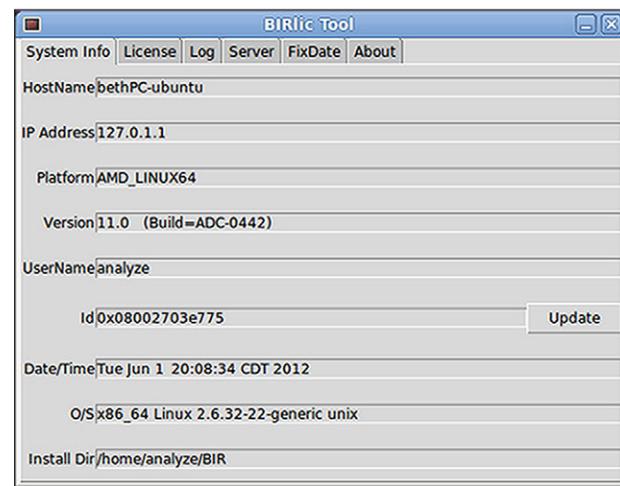


Figure 1

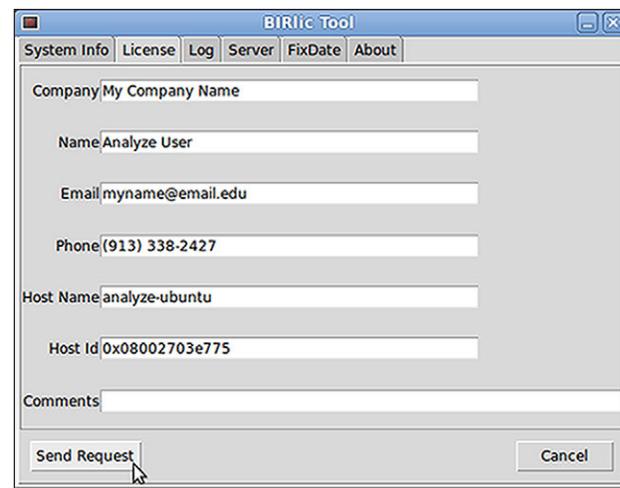


Figure 2



Figure 3

III. Analyze License File Installation

Installing a Node-Locked License

To install a node-locked license and configure the BIRlic license server for automatic startup:

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **\$BIR/bin** directory, where \$BIR is the path to the directory where Analyze is installed (e.g. /home/BIR).
2. Select the **License** tab and click the **Auto Retrieve** button.
3. Once your license has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 4).

note | If license retrieval is unsuccessful, please contact AnalyzeDirect at validate@analyzedirect.com or +1 913-338-2527

4. Select the **Server** tab to start the **BIRlic license server** and complete license installation.
5. 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. If no license server is running, this will generate a “**Connect Error**”. If the license server is running, then select the **Shutdown Server** button to shutdown that previous license server.
6. To configure the BIRlic license server to startup **automatically** at system boot:

- a. Select the **Install Bootscript** button. Click **Yes** to confirm that you would like to install the bootscript. Once the bootscript is copied, click **OK**.

note | You may need to be running BIRlic Tool as root to install these system files. If you do not have root permission, select **Start Server** to start the BIRlic license server.

- b. To execute the bootscript and start the license server, select the **Run Bootscript** button. Click **Yes** to confirm that you would like to run the bootscript. Once the server is started, click **OK**.

7. The license server process should now be listening for license requests. To run Analyze, please refer to “**IV. Running Analyze 11.0**” on page 14.

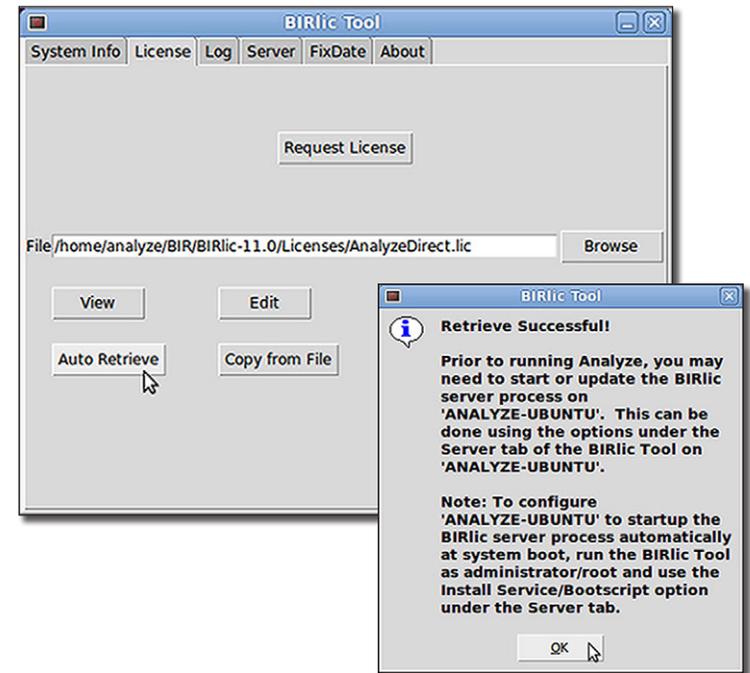
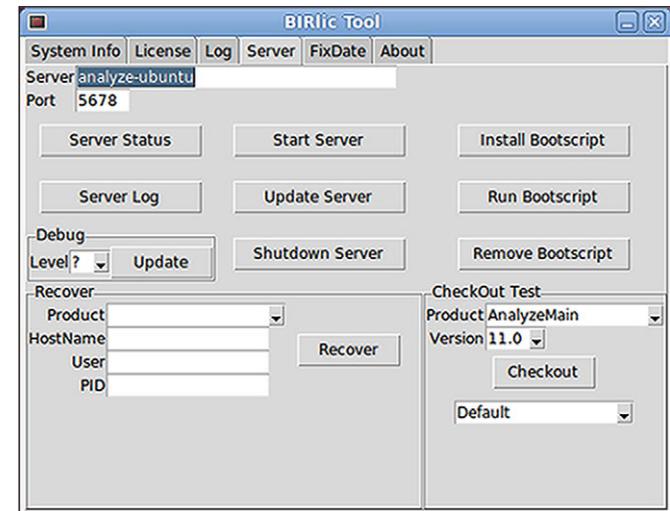


Figure 4



III. Analyze License File Installation

Installing a Renewal Node-Locked License

If the BIRlic license server for Analyze 11.0 is already running, then you can take the following steps to install your license once AnalyzeDirect notifies you that your license is ready to retrieve:

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **\$BIR/bin** directory, where \$BIR is the path to the directory where Analyze is installed (e.g. /home/BIR).
2. Select the **License** tab and click the **Auto Retrieve** button.
3. Once your license has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 5).

note | If license retrieval is unsuccessful, please contact AnalyzeDirect at validate@analyzedirect.com or +1 913-338-2527.

4. Select the **Server** tab in the BIRlic Tool.
5. To update the BIRlic license server with the changes to your license, select the **Update Server** button. Choose **Yes** when asked if you would like to update the license file for the server.
6. Once the license has been re-read a notification window will appear, reporting the number of changes detected. Click **OK**.
7. The license server process should now be running. To run Analyze, please refer to “**IV. Running Analyze 11.0**” on page 14.

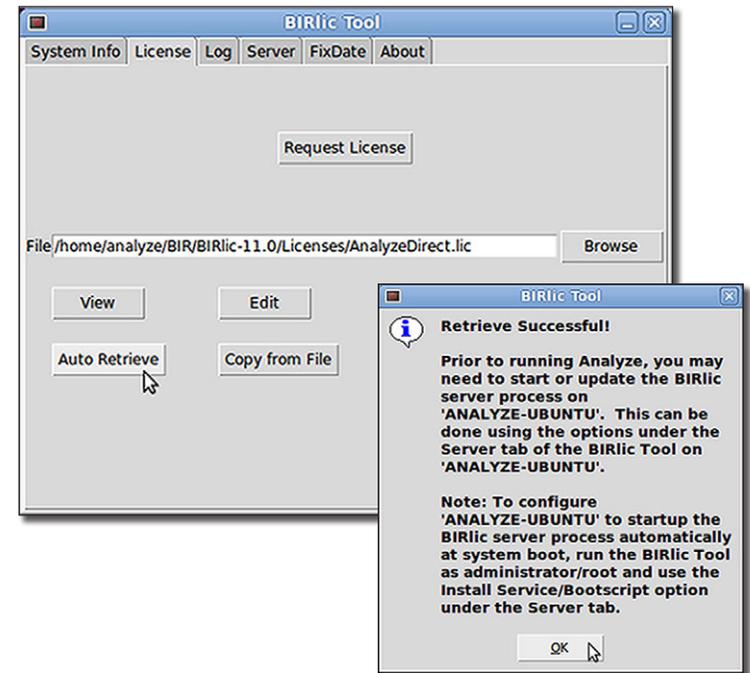
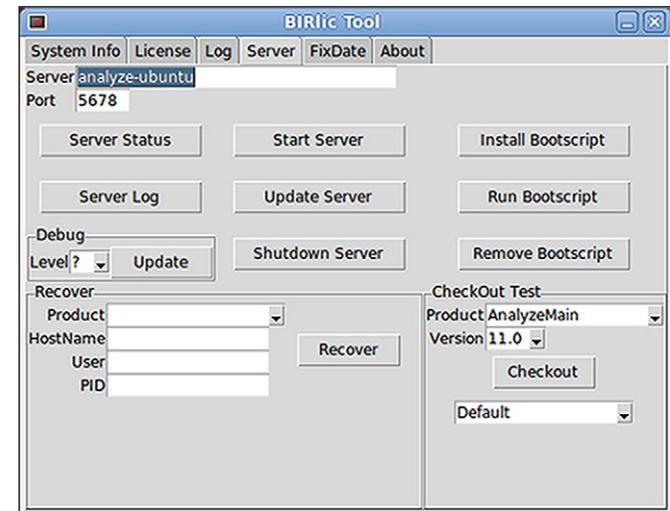


Figure 5



III. Analyze License File Installation

Installing a Floating License

Configuring a floating license server –

Once you have been notified by AnalyzeDirect that your license is ready to retrieve, take the following steps to configure a floating license server system:

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **\$BIR/bin** directory, where \$BIR is the path to the directory where Analyze is installed (e.g. /home/BIR).
2. Select the **License** tab and click the **Auto Retrieve** button.
3. Once your license 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 or +1 913-338-2527

4. Select the **Server** tab to start the **BIRlic license server** and complete license installation.
5. 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. If no license server is running, this will generate a “**Connect Error**”. If the license server is running, then select the **Shutdown Server** button to shutdown that previous license server.
6. To configure the BIRlic license server to startup **automatically** at system boot:
 - a. Select the **Install Bootscript** button. Click **Yes** to confirm that you would like to install the bootscript. Once the bootscript is copied, click **OK**.

note | You may need to be running BIRlic Tool as root to install these system files. If you do not have root permission, select **Start Server** to start the BIRlic license server.

7. The license server process should now be listening for license requests. To configure client systems to run Analyze 11.0, please refer to the steps on the next page.

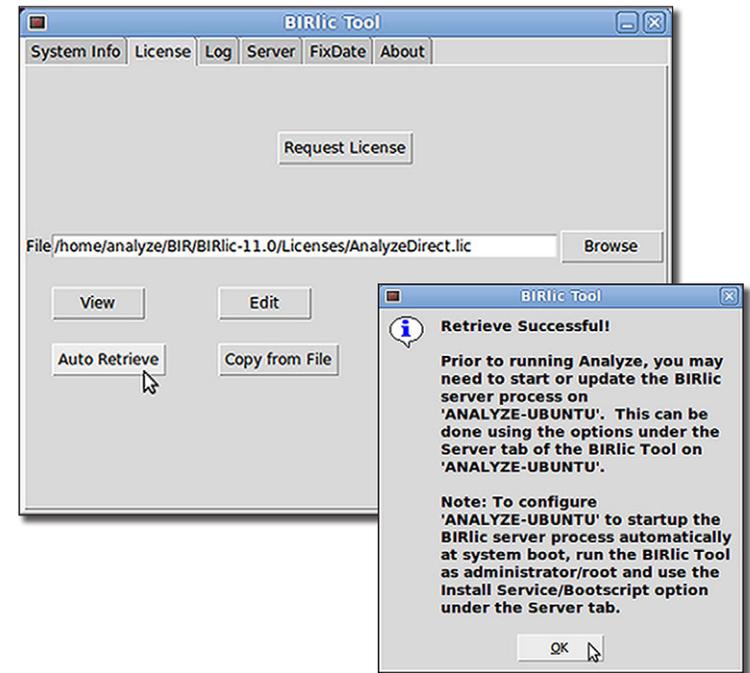
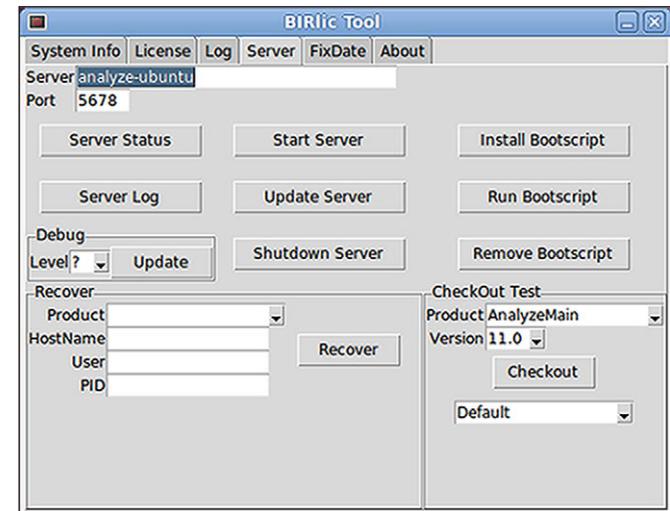


Figure 6



III. Analyze License File Installation

Installing a Floating License

Configuring a floating license client –

Once you have configured the floating license server system, take the following steps to install the license on client systems:

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **\$BIR/bin** directory, where \$BIR is the path to the directory where Analyze is installed (e.g. /home/BIR).
2. Select the **License** tab and click the **Auto Retrieve** button.
3. 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 7).

note | If license retrieval is unsuccessful, please contact AnalyzeDirect at validate@analyzedirect.com or +1 913-338-2527

4. In the window returned, enter the Host ID of the floating license server system (figure 8).

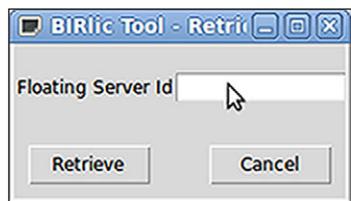


Figure 8

5. Once your license has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 9).
6. No additional configuration is necessary on client systems. You should **not** start the BIRlic license server on the client systems. For more information on running Analyze 11.0, please refer to “**IV. Running Analyze 11.0**” on page 14.

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

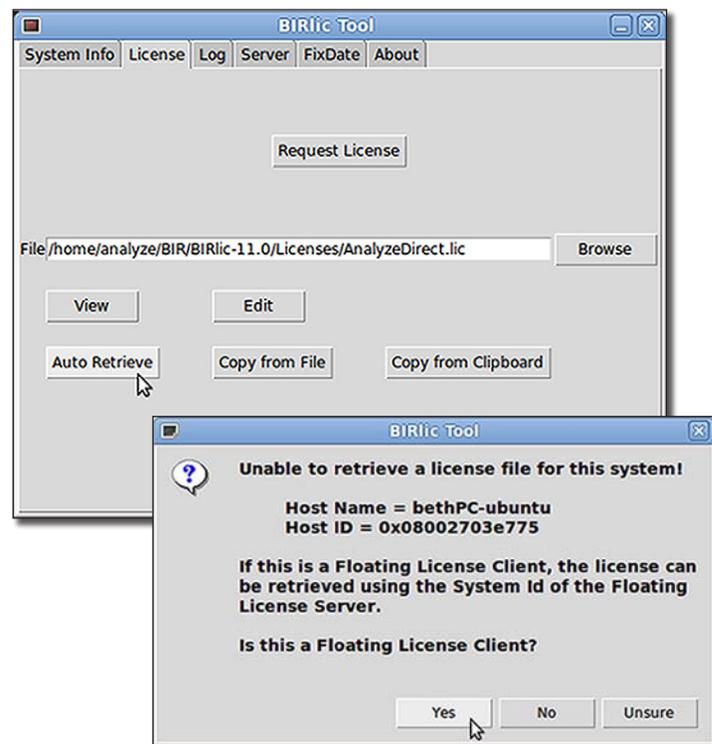


Figure 7

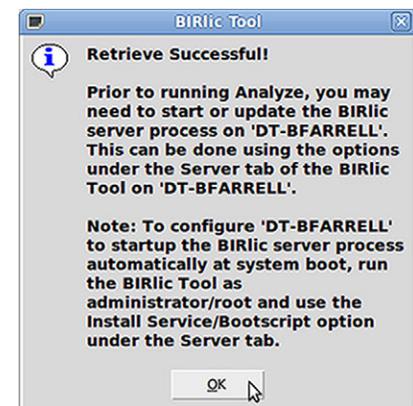


Figure 9

III. Analyze License File Installation

Installing a Renewal Floating License

If the BIRlic license server for Analyze 11.0 is already running, then you can take the following steps to install your license on the **floating license server system**:

1. Open the **BIRlic Tool** by double clicking on the **BIRlicTool** executable in the **\$BIR/bin** directory, where \$BIR is the path to the directory where Analyze is installed (e.g. /home/BIR).
2. Select the **License** tab and click the **Auto Retrieve** button.
3. Once your license has been retrieved, a dialog will be returned stating “**Retrieve Successful**” (figure 10).

note | If license retrieval is unsuccessful, please contact AnalyzeDirect at validate@analyzedirect.com or +1 913-338-2527.

4. Select the **Server** tab in the BIRlic Tool.
5. To update the BIRlic license server with the changes to your license, select the **Update Server** button. Choose **Yes** when asked if you would like to update the license file for the server.
6. Once the license has been re-read a notification window will appear, reporting the number of changes detected. Click **OK**.
7. The license server process should now be running. To run Analyze, please refer to “**IV. Running Analyze 11.0**” on page 14.
8. To install a renewal floating license on client systems, please refer to the instructions in the previous section, “**Configuring a floating license client –**”.

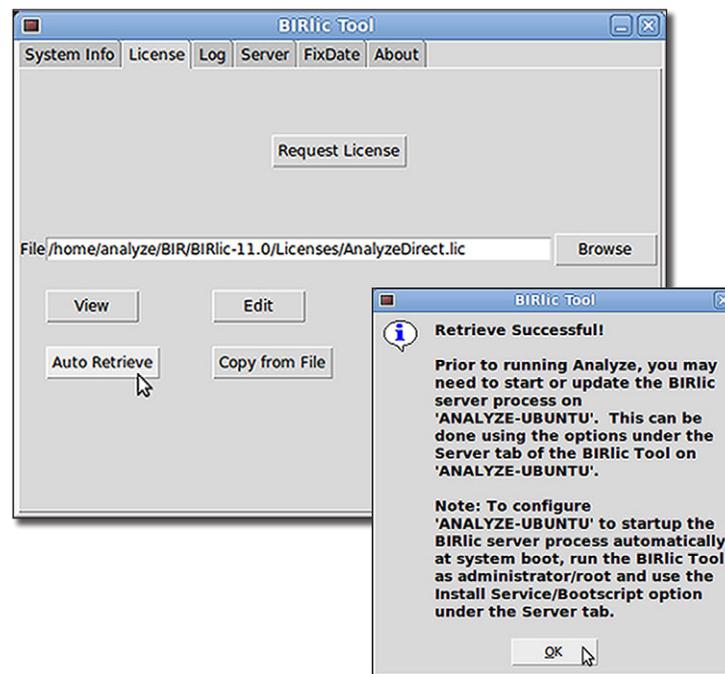
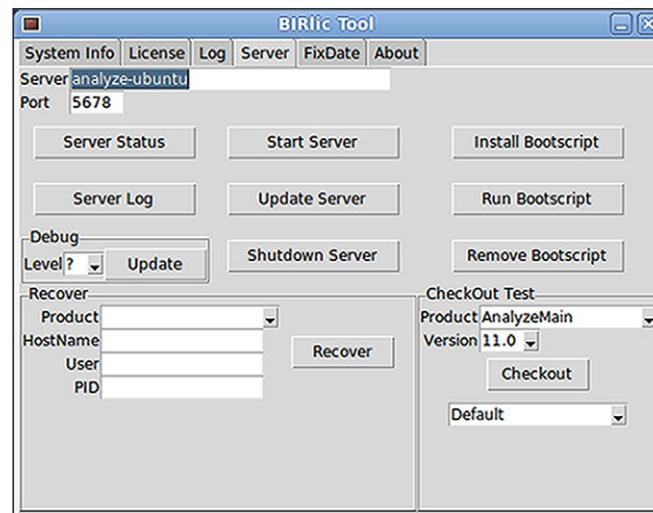


Figure 10



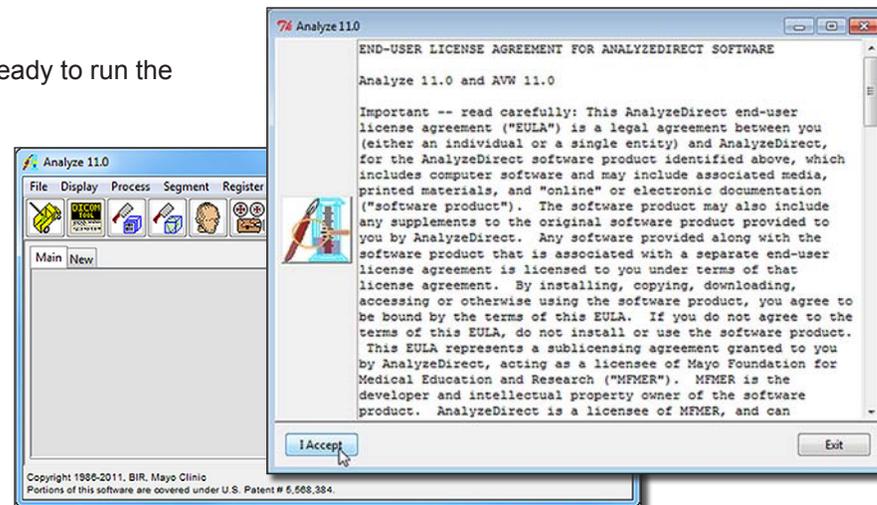
IV. Running Analyze 11.0

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, double-click on the **Analyze** executable in the **\$BIR/bin** directory (where \$BIR is the path to the Analyze install directory).
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 you have accepted the End-User License Agreement, Analyze 11.0 will open.

If Analyze 11.0 fails to open, please contact support@analyzedirect.com.

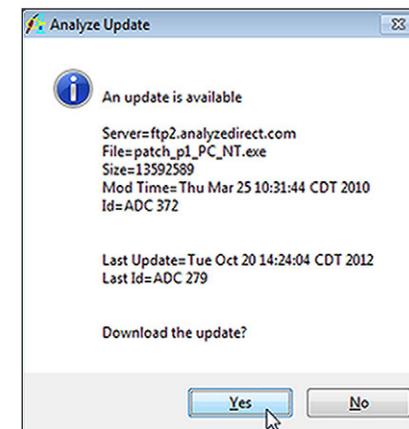


Analyze Patch Updates

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. Patches can be automatically downloaded and installed by selecting the **Help > Analyze Update** option from the main Analyze window.

If it is detected that a new patch is available when you select Help > Analyze Update, a window will appear, asking if you wish to download the update. Click **Yes** to download and install the patch update.

It is recommended that you check for new patch updates the first time you run Analyze 11.0 and then 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. /media/Resources/TutorialData).
5. Click **Install**. The tutorial data will be copied into the **\$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.

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 **\$BIR/AVW-11.0/Manuals** directory.

The best place to start practicing with the AVW functions is with the examples provided in the **\$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 **\$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 **\$BIR/AVW-11.0** directory provides an example of a script that can be used to set these development environment variables.