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## **AnalyzePC 3.0 for Windows 95/98/NT**

### *INSTALLATION INSTRUCTIONS*

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## Welcome

Welcome to **AnalyzePC 3.0**, a robust, powerful and practical research software suite for biomedical image visualization, manipulation and measurement. Analyze features integrated, complementary tools for fully interactive display, manipulation and measurement of multidimensional image data. It can be used to visualize data from many different imaging modalities, including CT, MRI, PET, SPECT, ultrasound and digital microscopy.

Analyze is a comprehensive, integrated biomedical imaging visualization and analysis workshop. It provides functionality to address a broad range of problems and features solutions to some of the most important challenges in biomedical imaging research, including segmentation, classification, registration, and display. 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. Its applications are broad in scope, wide in scale and penetrating in impact. It is routinely used in a vast number of biomedical imaging research applications, and is used as an educational tool to teach anatomy and function to medical students and clinical trainees.

**AnalyzePC 3.0** requires the following minimum PC configuration: an Intel Pentium or compatible processor; Windows 95, 98 or NT 4.0; a network card; a CD ROM Drive; 64 MB Ram; 24/32-Bit Graphics capability; at least 50MB Disk Space; a 3-Button Mouse.

The following instructions explain how to install **AnalyzePC 3.0** on a PC system from CD-ROM.

### 1. Obtaining a License File

**Before installation, you need to obtain a license file from AnalyzeDirect.com.** To generate the license file, AnalyzeDirect.com needs to receive specific network card related information from your PC. If you have not already done so, please send an e-mail to [validate@analyzedirect.com](mailto:validate@analyzedirect.com) with your name, company, telephone number and your PC network card Adapter Address:

- **Adapter Address for Windows 95/98** - select 'Start' → 'Run', enter "winipcfg". In the IP configuration box the Adapter Address will appear in the 'Address' column. Please select the address that corresponds to your network card (i.e. not the PPP Adapter address)
- **Adapter Address for Windows NT** - select 'Start' → 'Programs' → 'Administrative Tools' → 'Windows NT Diagnostics'. Choose the 'Network' tab, then the 'Transports' button. The Adapter Address is in the 'Address' column.

Once this information is received, AnalyzeDirect.com will send a license file to you by e-mail. The name of the license file is **AnalyzePC.dat**. We recommend that you wait until you receive the **AnalyzePC.dat** license file before commencing installation.

## 2. System Preparation

### Disk Space

Ensure that the system on which you will be installing this software and data has adequate free disk space. The disk space requirements are as follows:

Disk Space Requirements		
Section	Disk Space	Options
<i>AnalyzePC</i> Runtime	39 Mb	Mandatory
AVW Development Files	25 Mb	Optional
<i>AnalyzePC</i> Tutorials	146 Mb	Optional

**AnalyzePC Runtime** – includes Analyze programs, AVW libraries, help documentation, license management software, and other ancillary *AnalyzePC* files.

**AVW Development Files** – includes AVW development files, AVW documentation, example programs and Tcl/Tk development files (to be used with installation of the **DEVELOPERS EDITION ONLY**)

**AnalyzePC Tutorials** – includes the *AnalyzePC 3.0* Tutorials and all tutorial-related image data. Although this is the largest portion of the *AnalyzePC 3.0* installation and is optional, we recommend loading this section as it contains extremely useful information for learning the basics of *AnalyzePC 3.0*.

### Uninstallation of previous versions of AnalyzePC

If the system on which *AnalyzePC* is being installed has a resident copy of a previous version of *AnalyzePC*, although this is optional, we recommend that you uninstall the previous version prior to installation of *AnalyzePC 3.0*. Otherwise, make sure to choose a new installation directory for this version. To remove a previously installed version of *AnalyzePC*, use the Windows **Add/Remove Programs** process from the **Control Panel** menu as follows:

- 1.) Click **Start**, point to **Settings**, click **Control Panel** and then double click **Add/Remove Programs**.
- 2.) On the **Install/Uninstall** tab, click **AnalyzePC** and then click **Add/Remove**.
- 3.) Click **Yes** to **Confirm File Deletion**.

This will remove the entire previous version of *AnalyzePC* from your system.

### 3. AnalyzePC 3.0 Installation

The installation of *AnalyzePC* is managed automatically by the **InstallShield** installation program. The *AnalyzePC 3.0 Setup* process will lead you through a complete installation of the *AnalyzePC 3.0* software system (including optional components that are not installed in a typical installation if desired). To begin the installation process:

- 1.) Start Windows 95, Windows 98 or Windows NT 4.0 on your system.
- 2.) Close all active programs on the desktop.
- 3.) Insert the *AnalyzePC 3.0* CD into your CD-ROM drive.
- 4.) The *AnalyzePC 3.0 Setup* process should automatically start. If not, click the **Start** button, click **Run**, and in the **Open** box enter the location of the **setup.exe** program on the CD (type the CD drive letter, followed by a colon (:), a backslash (\), and the word **setup**, i.e., E:\setup). Then click **OK**.
- 5.) Once the *AnalyzePC 3.0 Setup* process starts, follow the instructions that appear for the installation of the *AnalyzePC 3.0* software.

#### AnalyzePC 3.0 Setup Notes

During the *AnalyzePC Setup* process, the following information will need to be provided:

**User Information:** enter your **Name** and **Company** in the fields provided.

**Choose Destination Location:** the default location for installation of *AnalyzePC* is **C:\BIR**, if the C: drive is the drive on which your Windows operating system is installed. The installation location can be changed to any valid drive and directory on the system if desired. Once selected, the **BIR** directory will be created at the specified location and the installation process will continue.

**Setup Type:** you may choose from three different types of installation – **Typical**, **Compact**, or **Custom**.

**Typical:** installs the *AnalyzePC 3.0* Runtime software files and the Tutorials and Tutorial image data (185 Mb).

**Compact:** installs only the *AnalyzePC 3.0 Runtime* software files (39 Mb).

**Custom:** permits selection of the three main components that can be installed – *AnalyzePC 3.0* Runtime files, **Development Files** for AVW-based development, and the *AnalyzePC 3.0 Tutorials* and tutorial image data (**DEVELOPERS EDITION NOTE – Custom installation must be selected and the Development Files box must be checked**).

**Program Folder:** the default program folder for installation of *AnalyzePC 3.0* is a folder called **Biomedical Imaging Resource**. The **Analyze** icon (and associated executable program referenced by this icon) will be placed in this folder. If you wish, the **Analyze** icon can be placed in any other program folder.

## 4. License File Installation

The *AnalyzePC 3.0* software system uses the **FLEXlm** license management software system from GLOBEtrouter Software for system validation and runtime license administration. The **FLEXlm** license manager software is located in the **/BIR/FLEXlm-7.0** directory. This directory contains a subdirectory called **licenses** within which a default license file is provided, called **AnalyzePC.dat**. Prior to running *AnalyzePC 3.0*, this default license file must be replaced by an **AnalyzePC.dat** file specific to your system. The specific **AnalyzePC.dat** license file will be provided to you via email (as described in section 1. Obtaining a license file). With *AnalyzePC 3.0*, two types of licenses may be provided: node locked licenses that are valid for a specific single system, and floating licenses that require a license server process to be established on a specific server system.

### Node Locked License File

A node locked **AnalyzePC.dat** license file will contain only the relevant validation information for one specific system on which *AnalyzePC 3.0* is to be run. In this case, license administration is handled entirely local to the specific system, with license file access automatically invoked when *AnalyzePC 3.0* is executed. Once the provided **AnalyzePC.dat** file has been copied to the **/BIR/FLEXlm-7.0/licenses** directory, *AnalyzePC 3.0* can be started.

### Floating License File

A floating **AnalyzePC.dat** license file will contain information about the license server system on which the license server process must be run, and the total number of licenses that are to be available via this floating license server. License administration is handled in a client/server architecture – the license server process runs on a specific server system and clients request licenses from this license server process in order to run *AnalyzePC 3.0*. The **AnalyzePC.dat** license provided will contain specific information on the server system in the first line of the file:

```
SERVER servername 001234567890
```

This line specifies the **FLEXlm** server information. The system established as the **FLEXlm** server will provide the pool of floating licenses. The server information on the first line in the file must reflect to the proper servername and the proper server id (001234567890). This information will have been provided at the time that the license file was generated, so this should contain proper information for this installation.

This **AnalyzePC.dat** file must further be copied to the **\$BIR\FLEXlm-7.0\licenses** directory on any of the client systems that will be running **AnalyzePC 3.0** and requesting licenses from this server. In this case, the license file tells the client system where to locate a server from which to request a license.

Once the **AnalyzePC 3.0** software and the **AnalyzePC.dat** license file have been installed on the server system and on any client systems that will be running **AnalyzePC 3.0**, the license server process must be started on the license server system in order for it to provide floating licenses to the clients on the network.

The **FLEXlm** license manager for the server is set up and started by a program that is in the standard **Windows Control Panel**. A **FLEXlm License Manager** icon appears in the **Windows Control Panel** to allow the license manager tool to be started. Assuming that the **AnalyzePC.dat** license file provided has been copied to the **\$BIR\FLEXlm-7.0\licenses** directory on the license server system, the license manager can be invoked from the **Control Panel** and the floating license server can be configured.

After invoking the **FLEXlm License Manager** tool, go to the **Setup** tab and establish the three fields which point to the location of files necessary to run the license manager. The first of these should be set to (using the **Browse** option is probably easiest – an install location of **C:\BIR** will be used in this example):

**lmgrd.exe** set to **C:\BIR\FLEXlm-7.0\Pc\_nt\bin\lmgrd.exe**

The second should be set to:

**License File** set to **C:\BIR\FLEXlm-7.0\licenses\AnalyzePC.dat**

The last should be set to the directory (file name set by default):

**Debug Log File** set to **C:\BIR\FLEXlm-7.0\Debug.log**

After accepting these settings (OK), the server can now be started using the **Start** button in the **Control Panel** options. This will start up the license manager on the server system, and it will begin listening for requests from clients for an **AnalyzePC 3.0** floating license. Again, note that any clients that will be accessing licenses from this specific license server will need to have a copy of **AnalyzePC 3.0 installed** locally on the client that also has the provided **AnalyzePC.dat** license file, as this license file tells the clients where to go look for a license manager with which to communicate and get a license.

The **FLEXlm License Manager** tool contains many other features used to start/stop the license manager process, get system information about the server system, and monitor the status of the license manager. Please refer the **FLEXlm** documentation available on Globetrotter's web pages ([www.globetrotter.com](http://www.globetrotter.com)) with regard to floating license management on PC systems for additional information.

## 5. Running AnalyzePC 3.0

If you have completed the installation process and followed the instructions for setting up the various *AnalyzePC 3.0* facilities, including the license installation, you are now ready to run the *AnalyzePC 3.0* program (and may do so with the provided demonstration data)

### Running The AnalyzePC 3.0 Program

To run the AnalyzePC 3.0 software system, select the Analyze icon from the Biomedical Imaging Resource program group on the Start -> Programs menu (or from whatever program group in which you installed AnalyzePC 3.0). This will invoke the AnalyzePC 3.0 program.

### Analyze Basics

To quickly learn the basics of Analyze, we recommend that you work through the Analyze tutorials (shown under Help > Tutorials). The tutorials are in .pdf format and require Adobe Acrobat to read. For optimal tutorial viewing and printing quality, we recommend downloading the latest version of Acrobat from Adobe's website at [www.adobe.com/acrobat](http://www.adobe.com/acrobat).

The Analyze Users Guide is shown in html format under the Help > Help menu and requires a configured web browser to read. The "Special Section on Image I/O" contains a useful troubleshooting guide on loading image files into Analyze. Read in conjunction with the "Import and Export of Image Data" tutorial, these two resources provide answers to the most commonly asked Image loading questions.

Of special note - *AnalyzePC 3.0* does not automatically load all of the image file format support libraries that are possible with Analyze. 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 your version of Analyze to load additional image file formats, use the Import/Export External Libraries tool. Consult the documentation mentioned above for more information if you encounter difficulties in importing or loading your image file format.

### Support

For support related issues, please send an e-mail to the AnalyzeDirect.com support team at [support@analyzedirect.com](mailto:support@analyzedirect.com). Support contracts can be purchased directly from the AnalyzeDirect.com website at [www.analyzedirect.com](http://www.analyzedirect.com).

## Appendix 1: Installed Software Organization

Once *AnalyzePC 3.0* has been installed on the system, the software organization in the installation directory will contain the following subdirectories and files (dependent on type of installation):

- **AVW-3.0**: the AVW libraries and development environment.
  - **COPYRIGHT**: copyright notice information for the AVW libraries.
  - **LicenseAgreement**: license agreement notice for the AVW libraries.
  - **Manuals**: PDF copies of the AVW Programmers Guide and AVW Reference Manual
  - **PC\_NT**: shared AVW libraries and executable binaries for PC systems.
  - **app-defaults**: default settings for AVW functions.
  - **develop\_env**: initialization script to support AVW-based software development (UNIX example).
  - **extras**: example programs to support AVW-based software development.
  - **include**: include files (.h) for AVW-based software development.
  - **man**: manual pages in html format for all AVW library functions.
- **AnalyzeAVW-3.0**: the *AnalyzePC 3.0* programs, help documents and ancillary files.
  - **AnalyzeTutorials**: *AnalyzePC 3.0* Tutorial documentation in PDF format.
  - **BitMaps**: bitmap files used for *AnalyzePC 3.0* icons.
  - **COPYRIGHT**: copyright notice information for the *AnalyzePC 3.0* software system.
  - **HelpDocs**: HTML-based on-line help documentation for *AnalyzePC 3.0*
  - **LicenseAgreement**: license agreement notice for the *AnalyzePC 3.0* software system.
  - **app-defaults**: default settings for individual *AnalyzePC 3.0* programs.
  - **bin**: the executable *AnalyzePC 3.0* programs.
  - **lib**: functions for specific routines and widgets which support *AnalyzePC 3.0*
- **FLEXlm-7.0**: the FLEXlm license manager files for *AnalyzePC 3.0* system license administration.
- **PublishSpool**: files to support the *AnalyzePC 3.0* printing mechanism.
- **SPM99-AAVW**: files to link *AnalyzePC 3.0* and SPM99 to allow direct image file sharing.
- **TCL-TK8.0**: interpreted language upon which *AnalyzePC 3.0* is built (public domain).
- **bin**: executable scripts for starting *AnalyzePC 3.0*.
- **ghost4.03**: an implementation of ghostscript used for printing support (public domain).
- **images**: *AnalyzeAVW* Tutorial image data and AVW 'extras' image data.

## Appendix 2: AnalyzePC 3.0 Image Memory Management

The *AnalyzePC 3.0* software system uses a method of memory management for loaded volume images that places certain requirements on the amount of available disk space. In *AnalyzePC 3.0*, the volume images are directly memory mapped to a new file which is created for each volume image when it is loaded. These memory mapped copies of the original volume image files have a .mmap extension and are located in a specific directory that can be controlled by the user. By default, this directory is set to the system TEMP directory ( usually C:\WINDOWS\TEMP on 95/98/2000, C:/TEMP on NT), as it always exists and usually has sufficient space for a few loaded volume images. However, depending on the system configuration of the disks, it may be desirable to change the location for these memory mapped files based on the available disk resources. The **ANA\_DIR** environment variable permits specification of this directory to hold the memory mapped files, which can be changed by setting this environment variable in the properties for the shortcut used to execute the 'Analyze.exe' program. The location of this directory should be on a disk local to the system running *AnalyzePC 3.0*.

The memory mapped files directory (also referred to as the 'workspace' directory), can also be changed while running *AnalyzePC 3.0*. With the cursor over the main *AnalyzePC 3.0* program canvas, select and hold the right mouse button, which will bring up a menu of several selections. The 'Workspace Directory' selection permits the entry of a new directory for the memory mapped files. This directory should be local to the system and should be on a disk partition with sufficient free disk space to handle the volume of loaded image data expected for all users.