

RATS Version 7 for UNIX and Linux Installation Guide

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Please Read This!

This document describes the procedure for installing RATS 7 on a UNIX or Linux system. It also provides important information on using the RATS software. Please feel free to provide copies of this guide for the RATS users at your location.

Section I: RATS 7 for UNIX and Linux

Introduction

This guide describes the procedure for installing and maintaining RATS Version 7 on UNIX and Linux systems, and provides some general information about using the RATS program in these environments.

The Distribution Disk

RATS is normally distributed on a single CD ROM. For UNIX, this disk includes a tar-gzipped file containing the source code and auxiliary files for RATS applications, an assortment of example programs and procedures, and various documentation files in Adobe PDF format.

For Linux, the distribution includes pre-compiled executable files for the applications. The source code files are optional.

Your Serial Number

Your serial number is printed on a label on the CD ROM sleeve. The serial number is required for technical support and for ordering updates, so please keep the distribution disks handy, or write the number somewhere easily accessible.

If you are a new purchaser, please fill out your registration form and return it to Estima, or register online via www.estima.com.

This is especially important if you bought the program through a dealer or through your purchasing department, as we will be unable to send you our newsletters without an address.

Minimum Disk Requirements

You will need approximately 90 Mb of disk space available to install and compile RATS on a UNIX or Linux system, including all of the example programs and data sets and PDF documentation files. Additional temporary space will be required if you need to compile the software.

Section II: Installing RATS

Transfer the Zipped File to Your System

To install RATS on your system, you need to transfer the compressed RATS source code on the CD ROM to your system using **binary** mode. For a standard version of UNIX RATS, the file will be called `rats7.tgz`. The file may have a slightly different name depending on the specific release, if you have the Professional version, or if you have a Linux license that includes source code.

Unzip the Distribution File

After the compressed file, `ratsnmm.tgz`, has been transferred to the desired directory (e.g. `/usr/local/rats7`), you can extract the files using an X Windows utility, or from a command prompt using commands such as the following:

```
$ gzip -d rats7.tgz
$ tar xf rats7.tar
```

This should create the following new subdirectories:

<code>/source</code>	The main source code for RATS (this directory is not included with the executable-only Linux version).
<code>/source_pro</code>	If you purchased the Professional version, you will also have a <code>source_pro</code> directory containing additional files required to compile the Pro version.
<code>/bin</code>	Auxiliary files required to run RATS, including image files for the toolbar icons, the error message file, and more. All of these files should be made available to end users in the same directory as the RATS executable files.
<code>/linux.bin</code>	Precompiled binaries for use on Linux systems. This will be called <code>linux_pro.bin</code> if you purchased the Pro version.
<code>/examples</code>	A large selection of example programs and RATS procedures. Many of these are discussed in the <i>User's Guide</i> . See the <code>/docs</code> directory for PDF files with brief descriptions of all of these.
<code>/docs</code>	PDF versions of the <i>RATS User's Guide</i> and <i>RATS Reference Manual</i> , as well as several supplemental documentation files.
<code>/help</code>	The help files for RATS, in html format. The file <code>"rats_hel.htm"</code> is the main help file—you may want to provide end users with a link to this file.
<code>/PaperReplicationExamples</code>	A collection of example programs and data files replicating results from important papers. See PDF file in the docs directory.
<code>/TextbookExamples</code>	An extensive collection of example files, procedures, and data sets demonstrating examples from a collection of useful textbooks.

Install and/or Compile the Program

- For Linux systems:

Pre-compiled executable files are included in the directory `/linux.bin` (or, if you have the Pro version, `/linux_pro.bin`). To use these executable files, just copy the files `rats`, `ratsx`, `ratsdata`, and `rgf2pst` into your `/bin` directory, and skip down to step “E” on the next page to set up RATS for execution on your system.

If you received source code with your copy and wish to recompile RATS yourself, continue with the instructions in the next paragraph.

- For UNIX systems, and Linux users who wish to compile from source code:

You will need an ANSI-standard C++ compiler to compile RATS. Most compilers will work, although we recommend the GNU C++ compiler from the Free Software Foundation.

In order to compile the X Windows interface version (`ratsx`), you must also have the *motif* libraries installed on your system.

The procedure for compiling the program is described below. We assume you have installed the files in the directory `/usr/local/rats7`. If you use a different directory, be sure to note the necessary changes.

RATS Professional: If you have purchased the Professional version of RATS (which adds the X11 seasonal adjustment procedure and additional database support), **copy the files from the `source_pro` directory to the `source` directory before proceeding.**

If you are interested in being able to read CRSP data files using RATS Professional, please contact our support department at support@estima.com for additional instructions.

The compilation procedure is as follows:

- A. Change directories to `/usr/local/rats7/source`:

```
$ cd /usr/local/rats7/source
```

- B. Edit the file `makefile` to indicate the compiler and options appropriate for your system:

- If you are using a directory other than `/usr/local/rats7`, change the `RATS_DIR` and `RATS_INSTALL` shell variables as needed.
- If you have the Professional version of RATS, uncomment (that is, remove the leading # symbol) the `RATSPRO` line. If you also wish to include support for reading and writing FAME format databases, uncomment the `FAME` flag as well. Note that you must have the FAME HLI library files installed on your system for this to work.
- Next, specify the proper compiler settings for your system, by uncommenting the appropriate set of flags for your system type. The `makefile` includes templates for most common systems.

- C. Use the `make` command to compile and link all modules. The compilation may generate warnings but should not generate any errors. The result of the compilation is four executable programs named `rats`, `ratsx`, `ratsdata`, and `rgf2pst`.

```
$ make all
```

- D. The makefile should automatically move the executable and auxiliary files to the `/usr/local/rats7/bin` directory. If this does not happen for some reason, you can do it manually as follows:

```
$ mv rats /usr/local/rats7/bin/.
$ mv ratsx /usr/local/rats7/bin/.
$ mv ratsdata /usr/local/rats7/bin/.
$ mv rgf2pst /usr/local/rats7/bin/.
$ cp *.xpm /usr/local/rats7/bin/.
```

- E. Add this `bin` directory to your path. In addition to the executables, there are a number of auxiliary files in the `/bin` directory created by the `tar` utility. If you install the executables to a different directory (e.g., `/usr/local/bin`), you should either copy the auxiliary files to that directory, or add the directories containing both the executables and the auxiliary files to your path.

- F. Install the manual page for RATS by moving or copying the file `rats.1` from the `/bin` directory to the `/usr/local/man/man1` directory.

Testing the Installation

To test the installation, try running some of the programs in the `examples` directory (see next page). Check the output files to confirm that the program runs to completion.

Section III: Running RATS

Batch Mode vs. Interactive Mode

Beginning with Version 7, the UNIX and Linux releases of RATS now include an X Windows interactive mode interface. Batch mode operation is also still available, so users can work with RATS in either mode as desired:

- In batch mode, you execute RATS from the command prompt. The program executes instructions from an existing input file, and writes the output to the terminal or to an output file. RATS uses ordinary text format files, so you can create program files and view output files using any standard text editor, or any other program that can save or view text format files.
- In interactive mode, you work in an X Windows/Motif-based interface called the RATS Editor. The Editor looks much like a standard text editor, but with the power to execute RATS instructions, display output, display graphs, and much more.

Most users will prefer interactive mode, and new users will certainly want to start with the interactive mode. Please see Section IV of the *Getting Started* booklet for more information on the interactive mode interface.

Running RATS and RATSDATA in Interactive Mode

To start the program in interactive mode, simply double-click on the “ratsx” executable, or type:

```
$ ratsx
```

at the command prompt.

To run the RATSData data-management utility, you would type:

```
$ ratsdata
```

at the command prompt.

For instructions on using RATS and RATSData in interactive mode, please see the *Getting Started* booklet.

Batch Mode

To execute RATS in batch mode, type `rats` at the command prompt, and supply one or two file names as command line arguments. The first argument is the name of the input or program file (a file of commands to be executed); the second argument is the output filename (where the output will be stored). If only one argument is supplied, RATS will treat it as the input file, and will display the output to the terminal.

For a simple test, change to the `examples` directory and type:

```
$ rats basics.prg basics.out
```

This command tells RATS to execute the file of commands called `basics.prg` and place the output in the file `basics.out`. If you wanted the output to be displayed to the screen rather than to a file, you would do:

```
$ rats basics.prg
```

Note that you can access the old non-X Windows command prompt interface by just executing `rats` with no input file. This allows you to execute commands at the “?” prompt, but most users will prefer the X Windows interface version for any interactive work.

Section IV: Graphics

Interactive Mode: Displaying, Saving, and Opening Graphs

With Version 7, graphs are only displayed on the screen when running RATS in interactive mode (using the `ratsx` executable)—they are not displayed when running in batch mode.

Graphs are displayed in a “Graph Windows”, and you can control whether RATS uses only a single graph window, or separate windows for each new graph you generate.

You can use **OPEN PLOT** or **ENVIRONMENT GSAVE** instructions to have graphs saved to disk automatically as they are generated. You can also use *File–Save As...* to save graphs after they have been generated. The *Save As...* dialog box allows you to choose the format in which you want to save the graph.

You can re-open files saved in RGF (RATS graph format) using the *File–Open Graph...* operation.

See the *Getting Started* booklet and Chapter 3 of the *User’s Guide* and for more on working with graphs.

Batch Mode: Saving Graphs and Converting to PostScript

Although graphs are not displayed when running in batch mode, you can still generate and save graphs to disk files for later use.

To save a graph in RATS’ native RGF (RATS Graphics File) format, just do a command of the form:

```
OPEN PLOT filename
```

before executing the **GRAPH**, **SCATTER**, or related instructions.

RGF files can be converted to encapsulated PostScript format using the `rgf2pst` program supplied with RATS. `rgf2pst` expects two command line arguments. The first argument is the name of an RGF file created by RATS. The second argument is the name for the file of PostScript commands to be created:

```
$ rgf2pst montevar.rgf montevar.ps
```

You can print the resulting file on any PostScript printer, or view it on a PostScript previewer (e.g., GhostView).

RGF files can also be transferred to a Windows-based personal computer and manipulated via the Windows versions of RATS.

You can also use the **ENVIRONMENT GSAVE=template** command to save graphs. This provides a convenient way to automatically save multiple graphs into separate files. You can use the **GFORMAT** parameter to save the graphs in RGF format, in PostScript format (eliminating the need to use `rgf2pst` to translate the file), or in Windows Metafile format.

Section V: File Handling and File Names

Specifying File Names

Wherever RATS requires a file name, you can use any legal UNIX/Linux file name. If you specify a file name for an `INPUT`, `DATA` or `SOURCE` file which does not exist, RATS will display an error message and ask you to supply the proper file name.

While it is not required, we strongly suggest several file naming conventions.

- .rat signifies a RATS format data file.
- .prg signifies a RATS program file.
- .src signifies a file containing a RATS procedure.
- .out signifies output from RATS.
- .rgf signifies a graphics file.

Moving data and programs between platforms

RATS uses the same command syntax on all platforms. Hence programs can be freely transported across systems. This means you can develop your programs on your desktop computer and easily move the program and data to your UNIX or Linux system for processing large jobs.

In most cases, the only changes that would be required would be to edit any explicit filename or path references. For example, UNIX systems use the “/” character to separator directory names, whereas Windows systems use “\” characters.

Section VII: Technical Support

Introduction

Support is not cheap, but we think it is an important part of what you have paid for. The next two pages describe the procedures for obtaining support and the level of support which you can expect from us.

Your Serial Number

Your serial number is printed on the distribution diskettes, and is the key to obtaining updates and technical help. We recommend that you keep the original diskettes handy—or, better yet, record the serial number somewhere where you can find it.

If you are a new purchaser, fill out your registration card or registration form and return it. This is especially important if you bought the program through a dealer or through your purchasing department as we will be unable to send you newsletters and other notices without an address.

Bugs and Potential Bugs

In a program as complex as RATS, there are undoubtedly some bugs remaining. In addition, because RATS has many features of a programming language, it is quite possible for you to experience problems due to errors in your own code. The more complex your program, the more likely it is that the latter is true. If your program is not running correctly, you should do the following:

- Check carefully that you are using the proper syntax for the instruction(s) causing the problem. See the *Reference Manual* in particular.
- If you are doing extensive operations with loops and **COMPUTE** instructions, put in some debugging statements (**DISPLAY**, **PRINT** and **WRITE** are the most useful for this) to see where things go awry.
- If, after all this, you have a strong suspicion that you have located a bug, contact Technical Support. If you have done a thorough job on the preceding steps, you can often ask a direct question such as “Is there a known bug in?”, and we may be able to give you a quick answer. If you have not been able to isolate the problem, we will almost certainly ask you to send us a diskette with the input file and data and as much other information as you can supply or to upload the file to the bulletin board. Our policy is that people who make such an effort to help us fix a bug get a free update.

Can RATS Do ...?

The answers to these generally fall into four categories:

- Yes—and you should have known it by looking at the index or table of contents in the *User's Guide* or *Reference Manual*. *Please check these first.*
- Yes, you can use the instruction ...
- Yes, but it takes a little work (a short sequence of instructions).
- No, or at least it would be very difficult.

Many of the suggestions made by users have helped to improve our product, so we try to be as helpful as we can. With types 2 and 3, we will usually tell you exactly how to do it. However, with type 4, we can only give you a general idea of what you have to do if you decide to press on.

Statistical Questions

RATS has many capabilities which may be unfamiliar to some of you. If you decide to explore some new territory, we will be happy to steer you to some good references or to explain how RATS does particular computations. However, while we can help to clear up basic misunderstandings about the use of the RATS instructions, we cannot give involved statistics lessons over the phone or by email. If you are interested in discovering new techniques, watch the newsletter for information regarding workshops.

The RATSletter

The *RATSletter* is a newsletter for registered users. We distribute it (approximately) four times a year. It includes new product announcements, answers to common questions, bug reports, tips on the use of the program, lists of contributed procedures, among others. We would appreciate questions of general interest and suggestions. If you have a program or part of one which you are proud of, send it in and let the rest of the RATS community see it.

The Estima Web Site and Discussion Forum

We welcome you to visit our web site at www.estima.com. You can get news and product information, download example programs and procedures written by RATS users from around the world, get answers to frequently asked questions, and more.

We also host a discussion forum on the website, at:

www.estima.com/forum

Whom To Contact

When you contact technical support please be able to provide the following information:

1. Your RATS serial number or the name of the institution where you are using the program.
We do spot checks to make sure that only those persons or institutions who have paid for the product receive support.
2. The product name and version number (e.g., "RATS 7.0").
3. Your machine type and operating system (e.g., "PC running Linux").

You can contact technical support at:

Phone: (847) 864-1910

Fax: (847) 864-6221

E-mail: support@estima.com

Web: <http://www.estima.com>

Mail: Estima
1560 Sherman Ave, Suite 510
Evanston, IL 60201

If you write, e-mail, or FAX us with a question, please remember to include your name, your serial number, and a return phone or FAX number or e-mail address.