Frequently Asked Questions
Contact us: info@fchart.com

I. General Information

Is a trial version available?

The demo version, available at no cost, is available for this purpose.

How can I buy EES?

A Student license for use by one person can only be purchased by credit card from our secure webstore. Commercial and Professional Licenses may be purchased by credit card, by check or by wire transfer (ACH or EFT). A purchase order with 30-day payment terms may also be accepted. Payment terms in excess of 30 days will not be accepted. We will not accept purchase orders that require the use of any type of online invoice submission system. If your company requires that invoices be submitted through an online portal then it will be necessary to order through a third-party software vendor. The name and email address of the end user (single-user) or license manager (multi-user or academic) must be provided with the order. See Payment Terms on our website for more information.

How is the software delivered?

The software is downloaded from the fchartSoftware.com website. The end user or license manager will receive an email with instructions, including a license file and unique password. We do not provide our software on a CD or DVD.

How many equations can EES solve?

The number of simultaneous equations that can be solved by EES depends on the type of license.

    Demonstration program: 50
    Student license: 3000
    Commercial license: 6000
    Professional license: 12000
    64-bit Professional license: 24000

What are the system requirements for EES?

EES is designed to run under Windows 10 and 11. It should also run properly under Windows 7 and 8. The program and its support files require 160 MB of storage. EES will dynamically allocate the memory it needs while running. The minimum memory requirement is about 65 MB. The memory use will grow with the size of the problem that is being solved.

What property data are included with EES?

EES property information can be classified as Ideal Gases, Real Fluids, Brines, or Incompressible Fluids. EES provides properties for hundreds of pure fluids and refrigerant mixtures. A complete

list of the fluids for which property data is available is provided on our website. Also, see the next item.

Does EES provide property information for mixtures?

EES provides thermodynamic and transport property information for many common refrigerant mixtures, as listed in the Fluid Property Information table on our website. Some of the mixtures are only available with a Professional version.   The NIST REFPROP program can provide property information for any mixture. The optional EES_REFPROP Interface allows the REFPROP property database to be used with the equation-solving, property plots in exactly the same manner as for the built-in EES fluids.

Why is EES returning property values that don't agree with my source?

The values of the properties specific internal energy, specific enthalpy, and specific entropy are not absolute. These values are only defined relative to reference values that are specified at a reference state. The choice of reference state is arbitrary.   The specification of different reference states is the primary reason that different sources of property information may sometimes appear to provide very different property values.   There are several common reference state choices, including:

1. The International Institute of Refrigeration (IIR) reference state sets the value of specific enthalpy to be 200 kJ/kg and the value of specific entropy to be 1.0 kJ/kg-K for saturated liquid at 0°C (273.15 K).
2. The ASHRAE Standard (ASH) reference state sets the values of specific enthalpy and specific entropy to 0 for saturated liquid at -40°C (-40°F).
3. The Normal Boiling Point (NBP) reference state sets the values of specific enthalpy and specific entropy to 0 for saturated liquid at the normal boiling point.

The default reference state for each fluid is specified internally and this choice can be viewed using the online help property information for that fluid. The $Reference directive allows the reference state to be changed from the default setting to IIR, ASH, or NBP.

Can property data be added to EES?

EES uses a detailed equation of state to determine property information for most of the Real Fluids. Instructions for entering fluid information represented by simpler Martin-Hou equation of state are provided on our website. Starting with version 10.627, EES can read .FDL files used with the NIST REFPROP program, which extends the number of pure fluids for which EES can provide property information. Data for Ideal Gases and Incompressible Fluids can be entered as described on our website.

Is training available?

Several training options are available. Online Help is provided with the program and it is robust and complete. YouTube Tutorials that are available on our website cover basic subjects. The Mastering EES ebook is a comprehensive presentation of all of the features in the Annual, Commercial and Professional versions of EES. In addition, our personnel may be available to provide a 1 day EES short course at your site tailored to new or experienced EES users. Contact us for pricing and availability.

What are the differences between the Student, Commercial and Professional licenses?

The basic features provided for all EES license types are listed on our website. A Student license is similar to the Commercial license, with the main difference that it expires after one year. Additional capabilities provided by the Professional license are summarized at https://www.fchartsoftware.com/ees/pro-comm-versions.php, and in greater detail in Mastering EES. See the table comparing the Student, Commercial and Professional licenses for more information.

Is technical support available?

Technical support is available for a Student License that is not expired and for other license types that have a current subscription for Instant Update and Technical Service (IUTS) or Academic Update Service. Technical support is provided only for issues pertaining to a potential fault in the software or to clarify the use of features in the program. Support for writing EES code is provided in the online help, YouTube videos, and Mastering EES.

I have a 64-bit Windows Operating System. Do I need the 64-bit version?

No. The 32-bit EES program (Student, Commercial or Professional) is designed to operate on both 32 and 64-bit Windows operating systems. A 64-bit version of EES can be purchased as an upgrade to a Professional license. Calculation speeds for the 64-bit Professional program can be 2 to 3 times faster than the 32-bit Professional program for computationally-intensive problems. The 64-bit program also provides up to 24,000 variables compared to 12,000 for the 32-bit Professional program.

Will EES run on Macintosh Computers or Linux?

EES has been specifically developed to run under the 32 and 64-bit Windows operating systems. However EES can be run on Macs using Boot Camp, Parallels Desktop, or VMWare Fusion. Also, EES can operate under Linux using Wine, an Open Source implementation of the Windows API. Academic EES licenses may be made available through Citrix Online XENAPP or AppsAnywhere, which can be run on any operating system.

Is EES available from distributors?

EES is distributed solely by F-Chart Software. While we will accept an order from a third party vendor, we do not allow reselling. We do not provide a discount to a third party vendor.

My computer has crashed. Will you send a replacement license file?

Replacement of a license file will be provided at no cost if the Instant Update and Technical Service for a named user license is current or if Academic Update Service for an Academic license is current.

I need to reference EES in my publication

If you use EES to produce results that are to be published, you should reference the program as follows.

Klein, S.A.,
EES – Engineering Equation Solver, Version XX.YYY, date
F-Chart Software, https://fchartsoftware.com

The version number and date are displayed on the EES startup screen

II. Named User Licenses

Is a single or multi-user license perpetual?

No. The Student license is a single-user license that expires after one year. Single and multiple-user Commercial and Professional licenses include one year of Instant Update and Technical Service (IUTS). Renewal of IUTS is optional for <=20 user licenses. Commercial and Professional licenses will be terminated 4 years after IUTS expires. Annual renewal of IUTS is required for >20 user licenses.

May I install my license on more than one computer?

Yes, a license may be installed two computers (e.g., a desktop and laptop), but only for use by the designated end user.

Is a floating license available?

No, we do not offer a floating license. Every user must be designated. Student and Single-User Commercial / Professional Licenses are registered for use only by the end user. The license manager of a multi-user license is responsible for ensuring that only the designated users have access to the software.

How can I determine when update service for my license expires?

The data of expiration of Instant Update and Technical Service (IUTS) is sent to the end user or license manager with the license file and again when this service is renewed. Also, the expiration date is displayed with the License Information command in the EES Help menu for versions 10.178 or newer. IUTS is not applicable to Student licenses.

How much does it cost to renew Instant Update and Technical Service?

The cost to renew IUTS depends on whether it is a Commercial or Professional version, the number of users, and the time elapsed since the last purchase of IUTS. The cost for this service is 20% of current cost of the program per year, but the cost increases to 40% for EES versions that have not been updated within the last two years. IUTS cannot be renewed for licenses that are 5 or more years old. Prices are shown at our webstore. Annual renewal of service is required for >20 user licenses at a cost of 25% of the cost of a new license.

Is it possible to upgrade a license?

Yes. A Commercial license may be upgraded from a Commercial to the Professional license, and the number of users may be increased. The cost of the upgraded license will be discounted by the amount initially paid provided that Instant Update and Technical Service is current.

Another upgrade is the [64-bit version](), which is available only for the Professional license. The Student license cannot be upgraded.

Is it possible to downgrade a license?
Under some circumstances, a multi-user license may be downgraded, e.g., 20- to 10-user. We generally discourage such action because credit for the cost of the initial license will not be available towards an upgrade if such action is requested is the future.

May I transfer my license to a different user?
Yes. It is possible to transfer the registration of a Commercial or Professional license to another user while the [Instant Update and Technical Service]() (IUTS) contract is in effect. A Student license cannot be transferred to another user.

III. Multiple-User Licenses
What is a multiple-user license?
A multiple (N-user) license is managed by a designated administrator. The license policy depends on the number of users. For N<=20 user licenses, the N must be all affiliated with one work unit and located at one physical location and [Instant Update and Technical Service]() (IUTS) is optional. For N>20 user licenses, the N users must be affiliated with one company, but it is not required to have all users be at one location. Also, IUTS is required for licenses with more than 20 users.   Each of the N individuals can install the program on his/her computer. Alternatively, EES can be installed on a central server for N individuals. The administrator must provide appropriate monitoring to ensure that only the N specified individuals have access to the software.

What is difference between a multiple-user license and a floating license?
The N-user license is restricted to a set of N users designated by the license administrator. A floating license would allow any N users to use the program at one time. Floating licenses are not available for EES.

What is the role of the administrator for multiple user licenses?
The administrator is charged with ensuring that EES is used in accordance with the [End-User License Agreement](). On requirement in the Agreement is that use of the program must be restricted to the set of N users that he/she designates. All issues related to technical support and updates are channeled through the administrator.

Can one of the users of a multiple-user license be changed?
The administrator of the multiple-user license is expected to ensure that only N-users have access to EES. The administrator may substitute one or more users provided that such changes are made infrequently.

IV. Academic Licenses
Term of the License

Academic licenses issued after June, 2020 (version 10.834 or newer) do not expire. However, no support of any kind is provided unless an annual subscription to [Academic Update Service](#) (see below) is in effect.

<u>What is the requirement for an Academic License?</u>
Academic licenses are available only to educational institutions involved in formal classroom instruction leading to a degree in an accredited university. The Academic license may be installed on a server that provides access to students and faculty in the adopting department(s), but restricts access by others.   Academic licenses require an internet connection with an IP address that maps to the university.

<u>May I install the software on a personal computer and use it at home?</u>
Academic licenses may also be installed on personal computers owned by students and faculty in the adopting department. However, use of the Academic version of EES requires an internet connection with a registered IP address that maps to the university. Off-campus access to EES may be provided by the department through their use of a program that provides internet delivery, such as [AppsAnywhere](#), [XENAPP](#), Remote Login to a server computer, or full-tunnel VPN provided that there is a login procedure for authorized users and it refers to a registered university IP address.

<u>Is a student version available?</u>
An Academic license purchased by a Department at an educational institution may be used by all students and faculty in that Department. The Academic EES program may be installed on personal computers, but it can only be used when connected to the internet with a registered IP address that maps to the adopting university. If an Academic license is not available, the Student license ($160) is the least expensive EES license type and it may be the most appropriate choice for students. Some students find our Demonstration version (which is free) useful, but its capabilities are significantly limited by allowing only 50 equations and it has no ability to save, copy or print.

<u>How many users will an academic license allow?</u>
The number of users for an academic license is not restricted. It may, however, be used only by faculty and students in the designated department and only for educational purposes. A single academic license may be used only by one department. Access MUST be restricted to persons in other departments. F-Chart Software will provide a license for the whole college or equivalent if two departments within the college both obtain a license. In this case, both licenses must be the same type, e.g., Commercial or Professional.

<u>May an academic license be used for research?</u>
An academic license may be used for research only if that research is part of a student's degree requirement. A non-academic license is required if the license is used for sponsored research or other activities that are not part of a student's graduation requirement. Thesis research that leads to an advanced degree is considered an academic activity and is allowed under the

license agreement. Use for research by a post-doctoral candidate is not allowed with an Academic license.

Academic Update Service
Access to the setup program for the current Academic version and technical support are only available with an annual subscription to the Academic Update Service (AUS). Technical support includes changing or adding registered IP addresses for the license in addition to services related to the program operation. The cost of this optional service is:
- $600 (Commercial, update service expired less than 1 year ago)
- $1200 (Commercial, update service expired > 1 and <4 years ago)
- $3000 (Commercial, update service expired more than 4 years ago)
- $1000 (Professional, update service expired less than 1 year ago)
- $2000 (Professional, update service expired > 1 and <4 years ago)
- $4750 (Professional, update service expired more than 4 years ago)

Academic Update Service will allow departments to access the most recent version of EES to take advantage of program enhancements that are continuously being added. Departments that do not have a subscription to Academic Update Service can continue to use the Academic version of EES they currently have installed without support.

Why is EES showing a License Error?
When the Academic EES program starts it needs to connect to our website (fchartsoftware.com) by FTP on port 21. If you see the message "This version of EES can be used only if you are connected to the internet", the problem is likely that your network is restricting FTP access. You will need to have your IT support open access to https://fchartsoftware.com on port 21. Information relating to this problem may be available in the **License Information** command in the **Help** menu.

How can I tell what IP numbers are accepted by the Academic version of EES?
The IP addresses that EES will allow can be seen using the **License Information** command in the **Help** menu. Use of EES will be blocked if it is not connected to an allowable IP address. If there is a need to modify the allowable list of IP addresses, the license manager should contact us (info@fchart.com). A current subscription to Academic Update Service is required for changes to be made to registered IP addresses.