

Entisoft Units -- Contents

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See also:

[License Agreement](#)

Credits

Software: Software designed by Stephen Schmidt and John Kallie. Software implemented by Stephen Schmidt. Most of the software was written in Microsoft Access 2.0. The stand-alone program was written in Microsoft Visual Basic 3.0. The install program is part of EDI Install Pro from Eschalon Development Inc.

Documentation: Documentation designed and written by Stephen Schmidt. The Windows-format help file was created with the aid of Xantippe version 2.0 from IRIS Media Systems.

Testing: Software tested by Stephen Schmidt, John Kallie, James Schmidt, Mike Ausloos, and Brian Breidenbach.

Copyright Details

The file **VBRUN300.DLL** is copyright © 1987-1993 Microsoft Corp.

The files **INSTALL.EXE** and **INSTALL.BIN** are copyright © 1993 Robert Salesas.

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Overview of Entisoft Units

Entisoft Units is a sophisticated measurement conversion calculator that recognizes an extensive set of over 800 conversion factors, prefixes, constants, abbreviations, and synonyms. **Natural Language Interface:** Measurements are expressed in a form similar to algebraic expressions. **Depth of Coverage:** Entisoft Units contains all of the important metric, SI, English, Avoirdupois, Troy, and ancient conversion factors. For example, converting "10 cups" to "liters" returns 2.37. **Combination of Units:** Entisoft Units understands any combination of the known units and/or prefixes. For example, converting "45 ft*lbs/second²" to "Newtons" returns 6.22. **Abbreviations and Synonyms:** Entisoft Units knows the abbreviations, full names, and common synonyms for the conversion factors. For example, "kph" could be entered as "km/hr", "kmeters/hour", "kilometers per hour", etc. **Remaining Units:** Entisoft Units returns the remaining units if the dimensions of the units do not match. For example, converting "12 Joules" to "N" (Newtons) returns "12 m" (meters). **Fractional Numbers:** The functions understand numbers expressed in either decimal form or as fractions.

See also:

[Currency Conversions](#)

[Distribution Files](#)

[Resistor Color Codes](#)

[Search Details](#)

[SI System Base Units](#)

[Supplemental Data File](#)

[System Requirements](#)

[Temperature Conversions](#)

Function Call Interface

Overview: The registered/commercial version of Entisoft Units includes the source code to all of the conversion functions and programs. It lets you integrate conversion calculations into any of your Microsoft Office applications. Microsoft Access users can use the conversion functions within Queries. Access developers can use the conversion functions within Access Queries, Forms, Reports, and Modules. Microsoft Excel users can use the conversion functions within Worksheet and Chart formulas. Excel developers can use the conversion functions within Excel worksheets, charts, and modules. Visual Basic developers can use the conversion functions within compiled Visual Basic projects. Microsoft Project users can use the conversion functions within Project module code. Other users running Windows can use the stand-alone program to perform measurement conversions.

Functions: The source code contains several Visual Basic functions that you can call from various contexts. The following list briefly introduces the important conversion functions:

estConvert performs measurement conversions given a numeric measurement, the units of that measurement, and the desired units for the result. For example, **estConvert**(5, "feet", "meters") converts 5 feet into meters, returning 1.524.

estConvertSpecial performs measurement conversions to and/or from multiple related units, as well as supporting fractional numbers and the rounding of results. For example, **estConvertSpecial**("5' 11 13/16""", "m", "", 1000, False) converts 5 feet 11 13/16 inches into meters, returning 1.824.

estConvertString performs similar conversions given a string describing the conversion to be performed. For example, **estConvertString**("5 feet to meters") performs the same conversion as in the above example.

estConvertEnum enumerates the units represented by an expression. For example, **estConvertEnum**("KW*hr") returns "kilowatt*hour".

estConvertFindCat determines the physical measurement represented by an expression. For example, **estConvertFindCat**("KW*hr") returns "energy".

estConvertCheck performs several consistency checks of the currently-defined measurements and prefixes.

estConvertLoadMultiLines loads the unit definitions, prefix definitions, global text definitions, and data files specified by the argument.

estConvertAddUnit registers a new conversion factor which Entisoft Units can use within conversion calculations. For example, **estConvertAddUnit**("in", "inches", 1/12, "foot", "length") defines a unit of length named "inches" with identifier "in" as 1/12 of a foot.

estConvertAddPrefix registers a new prefix which Entisoft Units can use within conversion calculations. For example, **estConvertAddPrefix**("m", "mega", 1000000) adds the prefix "mega" identified by "m" as 1,000,000 (10^6).

estConvertAddReplacement registers a new text string replacement which Entisoft Units will attempt to apply during each conversion calculation. For example, **estConvertAddReplacement**("inch", "in", 0) adds the synonym "inch" which is replaced everywhere that it occurs within expressions by "in".

See also:

[Software Releases and Version Numbers](#)
[System Requirements](#)

Ordering Information

Ordering Advantages--Technical Support: Registered users receive technical support via telephone, E-Mail, or BBS. Registered users can also download program updates directly from our bulletin board.

Ordering Advantages--Additional Versions and Data: The Registered version of Entisoft Units contains a Microsoft Project version as well a supplemental data file containing several types of physical constants and other definitions.

Ordering Advantages--Source Code: The registered/commercial package includes the Visual Basic source code for the Visual Basic stand-alone program, the Access and Excel Add-Ins, and the Project library versions of the program. You cannot distribute any of the source code or the source code documentation, but you CAN distribute the conversion functions compiled into your own Visual Basic projects and Excel Add-Ins, and you CAN distribute the conversion functions in "secured" or "run-time" versions of your Access projects. The source code is well documented, and it also contains several generally-useful functions that you can use within your Microsoft Office projects.

Pricing: Entisoft Units is priced at \$39.95 for the single-user version, which includes the program and its source code. Site licensing and academic discounts are available; call for information. Please call for additional information about this product and our other Microsoft Office-compatible libraries.

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Electronic Delivery: Electronic delivery service is available. In this form of delivery, you call our bulletin board system and download the latest version of the software. You can also call our bulletin board in the future to download program updates and other related files.

Temperature Conversions

Entisoft Units supports temperature conversions. For example, converting "74 dF" (degrees Fahrenheit) to "dC" (degrees Celsius) returns 23.33. When converting from temperatures of zero degrees, remember to enter "0" followed by the temperature measurement--the absence of a number is interpreted as "1".

Currency Conversions

Identifying Currencies: Entisoft Units recognizes most international currencies by their full name (such as "Japanese yen" or "French franc") or the ticker symbol of their exchange rate (such as "XRJY" or "XRFF"). It also recognizes international currencies by their common name (like "yen" or "franc") except in some cases when several different countries use the same name.

Exchange Rates: The exchange rate data included in the supplemental data file is current as of 4/25/95. If you are interested in using Entisoft Units to perform currency conversions, you will have to provide the current exchange rate data. You can supply this data in the form of a text file having the same format as the supplemental data file. You can also supply this data by calling the appropriate Entisoft Units functions.

Note about UK Pounds: UK Pounds (a unit of currency) cannot be abbreviated "pound" because "pound" is a measurement for mass (weight) in the English (FPS) system.

See also:

[Supplemental Data File](#)

Search Details

Plural/Singular Forms: Entisoft Units searches for unit definitions using the non-plural form of those names which may be plural. For example, a search for "Newtons" would first look for "Newtons" then look for "Newton" when that is not found. **Case-sensitivity:** Entisoft Units first tries to match each unit name using exact capitalization, then it tries to find a match using a case-insensitive search. For example, a search for "newton" would first look for "newton" then look for a unit whose capitalized name is "NEWTON". **Overloaded Names:** Entisoft Units contains some definitions whose abbreviations are the same. In such cases, the abbreviations are capitalized differently. For example, within the SI system, "rad" is defined as an abbreviation for radians. Therefore, within this program, rads of absorbed dose are identified as "Rad". **Prefixes and/or Units:** Entisoft Units recognizes any combination of known prefixes and/or units. It will recognize "kilometers" as a combination of the prefix "kilo" and the measurement "meters". It does NOT recognize more than one prefix so, for example, it would not recognize "kilokilometers" as another way to phrase "megameters".

Resistor Color Codes

Entisoft Units can interpret resistor color codes. To find the resistance in ohms of a resistor with red, orange, and yellow bands, enter "red orangeEyellow" (without the quotes).

See also:

[Supplemental Data File](#)

Entisoft Units, The Program

The stand-alone Windows program features an interactive calculator, list of known units and prefixes, tip wizard, recall list, and user program windows. All user input and calculated results are shown with the physical measurements that they represent. For example, any measurements of the form "length per time" (e.g. "miles per hour") are described as "speed". The units mentioned in all input and result expressions can be enumerated. For example, the program will tell you that "kg*m^2" was interpreted as "kilogram meter^2". Any remaining units are returned in the standard SI units for the physical measurement. For example, measurements of energy such as "kilowatt hours" are displayed in joules (the SI unit of energy). Results can optionally be displayed in terms of the fundamental base units (kilograms, meters, seconds, amperes, etc.) Result window changes colors to indicate when units are matched or mismatched or when there is an error. Several menu items control the content and format of the units and prefixes list. User-defined unit and prefix definitions can be entered into the program directly or read from a text file. Results are formatted as appropriate to show as much information as possible within the result window. Results are calculated and displayed as soon as there is a pause in your typing--no need to press {Enter} to perform the calculation.

[Tips Window](#)

[Definitions Window](#)

[Program Window](#)

[Recall Window](#)

[Calculator Window](#)

See also:

[Software Releases and Version Numbers](#)

[System Requirements](#)

["There is no more information available about this message."](#)

Supplemental Data File

The registered/commercial version of Entisoft Units contains a supplemental data file with over 1,000 additional electrical, chemical, physical, and other constants. The supplemental data file is a text file. It contains the definitions in the form of function calls to the Entisoft Units functions responsible for adding new definitions to the program. This file can be read directly by the stand-alone program, or it can be embedded into source code. It currently contains definitions for the following measurements:

- Chemical Elements
 - Abbreviations
 - Atomic Number

- Computer
 - Visual Basic data type storage lengths
 - Visual Basic data type value ranges

- Currencies
 - Exchange Rates as of 4/25/95
 - Ticker Symbols for Exchange Rates
 - Pictures on US Bills
 - Names of US Coins
 - Slang for US Currency
 - (See also [Currency Conversions](#))

- Electrical/Electronic
 - Frequency Classifications
 - Television (TV) Channel Sound and Picture Frequencies
 - Miniature Lamp Voltages
 - Miniature Lamp Currents
 - Wire diameters
 - (See also [Resistor Color Codes](#))

- Mechanical/Physical
 - Piano Key Frequencies
 - Sound Intensities
 - Drill Sizes
 - Nail Sizes
 - Shotgun Bore Sizes
 - (See also [Temperature Conversions](#))

- Miscellaneous
 - Beaufort Scale (Average Wind Speeds)
 - Rain Intensities
 - Compass Points (N, E, NE, NNE, etc.)

Bulletin Board System (BBS) Details

BBS Purpose: Our bulletin board is available to provide information about our products and to support our registered users. It is open to the public. Anyone can login to get information about our products and to download demonstration versions of them. Registered users can login to download the latest version of the program.

Technical Details: Our bulletin board supports calls at speeds between 2400 bps and 28.8 kbps. The protocol is 8-N-1 (8 data bits, no parity, and 1 stop bit). The telephone number is 1-310-575-4192.

See also:

[Contacting Entisoft](#)

System Requirements

Executive Summary: To take full advantage of Entisoft Units, you need at least 8MB of RAM, Microsoft Visual Basic 3.0, Microsoft Access 2.0, Microsoft Excel 5.0, and Microsoft Project 4.0.

Stand-alone Program: To run the stand-alone program requires Microsoft Windows 3.1 or above with **4MB of RAM**. Some large listings may be shortened when running under Windows 3.1.

Visual Basic Version: To modify the stand-alone program required Microsoft **Visual Basic 3.0**. Either the Standard Version or the Professional Version of Visual Basic can be used since Entisoft Units does not use any custom controls.

Access Version: The Access Add-In requires Microsoft **Access 2.0**. We expect that Entisoft Units will work unchanged with **Access for Windows 95**. We have tested the program with pre-release versions of Access for Windows 95 and it essentially works, but an Access bug prevents the database file from being converted to the new database format. Microsoft has stated that they are working to correct this known problem before Access for Windows 95 is released.

Excel Version: The Excel Add-In requires Microsoft **Excel 5.0 or above**. It works unchanged with Excel for Windows NT and with pre-release versions of Excel for Windows 95. Most features are thought to work with Excel 5.0 for Macintosh.

Project Version: The Project version of Entisoft Units requires Microsoft **Project 4.0**. It works unchanged with pre-release versions of Project for Windows 95. Most features are thought to work with Project 4.0 for Macintosh.

There is no more information available about this message.

If you need more information and/or you cannot resolve this problem, please [contact Entisosft](#). Please note the number of the error/warning message you received, the version number of this program, and any other information that you think may help solve the problem.

Software Releases and Version Numbers

The larger the version number, the more recent the software. Each unique version of the software can also be identified by its corresponding release date. The first part of the version number identifies the major revision. The second part of the version number identifies the minor revision.

Distribution Files

Different Distributions

There are three distributions of Entisoft Units. The **mini shareware distribution** contains the stand-alone Windows-executable program and Help file only. The full **shareware distribution** contains the stand-alone Windows-executable program, the Access and Excel Add-Ins, and an installation program. The **registered/commercial distribution** includes the stand-alone program and the Access and Excel Add-Ins. It also includes the Microsoft Project port, the Visual Basic source code, and the supplemental data file.

See also:

[Copyright Details](#)

Release Notes and Installation Instructions

Floppy Disk Distribution

Users who receive Entisoft Units on floppy disk can install the program either automatically or manually. To perform an **automatic installation**, insert the first floppy disk and type **A:INSTALL** {Enter}. If your floppy disk is drive B, you would instead type **B:INSTALL** {Enter}. To perform a **manual installation**, create a new directory for Entisoft Units then copy the files from the floppy disks into that new directory.

Installation Program

The installation program is optional. After uncompressing the distribution file, you can either run the INSTALL program to complete the installation, or you can begin using the files directly. The INSTALL program copies the program files to the specified directory then creates an Entisoft group with several program shortcuts.

Access Add-In

The Access Add-In is NOT automatically installed as an Access Add-In. The Add-In database can be opened as any other database, or you can use the File menu Add-Ins command to install Entisoft Units as an Add-In that will be loaded each time Access is started.

Excel Add-In

The Excel Add-In is NOT automatically installed as an Excel Add-In. The Add-In workbook can be opened as any other workbook, or you can use the Tools menu Add-Ins command to install Entisoft Units as an Add-In that will be loaded each time Excel is started. You can also use the Tools menu References command to establish a reference from the current Workbook to Entisoft Units Add-In.

Project Port

Microsoft Project does not have an Add-In command similar to Access and Excel. To use the Project port of Entisoft Units, open the ESUnits.MPP file, or use the References command to establish a reference from the current project file to the Entisoft Units project file. To install Entisoft Units so that it will be available each time Project is started, first Open the ESUnits.MPP file then use the Views menu More Views command. Press the Organizer button then select the Modules tab. Copy all of the Modules from ESUnits.MPP into the GLOBAL module.

See also:

[Distribution Files](#)

[System Requirements](#)

Technical Support

Technical Support: We accept technical support questions via telephone, fax, BBS, electronic mail, and regular mail. Contact us with your questions. Technical support is available between 9 A.M. and 5 P.M. Pacific Time weekdays. You can call and leave a voice mail message for us when we are closed.

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CompuServe Mail: 73200,3207
Bulletin Board System (BBS): 1-310-575-4192

Program Updates: Registered users can download the latest versions of Entisoft Units from our BBS.

Demonstration Software: Download the latest demo versions of our software from either our BBS or the CompuServe MSBASIC, MSACCESS, MSEXCEL, and MSDESKTOP forums.

estConvert Function

Convert a measurement from one unit to another.

SYNTAX

```
estConvert(vvarFromValue, vvarFromUnits, vvarToUnits)
```

REMARKS

This function performs measurement conversions given a numeric measurement, the units of that measurement, and the desired units for the result.

Arguments: vvarFromValue can be any type of numeric value, including decimal/fractional numbers or dates which are represented as strings. vvarToUnits and vvarFromUnits are assumed to be strings containing symbolic measurement expressions.

Return Value: The function returns a numeric result when the vvarFromUnits and vvarToUnits expressions represent the same type of physical measurements. It returns a string of the form "12 meters" when the vvarFromUnits and vvarToUnits do NOT represent the same type of physical measurement. When errors occur, the error message is returned as a string of the form "Error:" The function returns Null when all three of its arguments are Null.

Remaining Units: The setting of the estConvertToBaseUnits global variable controls how remaining units will be returned. Remaining units will be returned in the standard SI measurement for the category when this setting is False, and they will be returned as a combination of base SI units when the setting is True.

EXAMPLES

estConvert(5, "feet", "meters") converts 5 feet into meters, returning 1.524.

estConvert(5, "ft*lb/s^2", "Newtons") converts 5 foot-pounds per second squared into Newtons, returning .6912.

estConvert(23, "lbf", "") converts 23 pounds-force into either newtons or kilogram meters per second squared, depending upon to the setting of the estConvertToBaseUnits global variable.

SEE ALSO

[estConvertString Function](#)

[Currency Conversions](#)

[Search Details](#)

[Temperature Conversions](#)

estConvertString Function

Perform the measurement conversion described by the string argument.

SYNTAX

```
estConvertString(vvarExpr)
```

REMARKS

This function splits the vvarExpr string into its "from measurement" and "to measurement" components then passes those expressions on to the [estConvert](#) function for conversion.

Arguments: It expects to find strings of the form "34 feet to meters" When it does not find the phrase " to " in the string, it passes the string as the "from measurement" and passes an empty string as the "to measurement".

Return Value: Function returns Null when its argument is Null. Function returns the result from the call to the estConvert function otherwise.

EXAMPLES

estConvertString("5 ft to in") converts 5 feet to inches, returning 60. It is equivalent to the function call **estConvert(5, "ft", "in")**

estConvertString("5 ft") converts 5 feet to meters (the standard SI measurement for length) returning "1.524 m". It is equivalent to the function call **estConvert(5, "ft", "")**

SEE ALSO

[estConvert](#)

estConvertAddUnit Function

Registers a new measurement definition.

SYNTAX

estConvertAddUnit(vstrCode, vstrName, vdblConstant, vstrDefinition, vstrCategory)

REMARKS

Arguments: vstrCode is the code or unique identifier of the unit. vstrName is the name and/or description of the unit. When vstrName is blank, vstrCode is used as the Name. vdblConstant is the numeric part of the definition of the unit. vstrDefinition is a string containing the symbolic part of the unit definition. vstrCategory is the user-specified category of the primary physical measurement described by the unit definition.

Return Value: Function returns an empty string upon success. It returns the error message as a string when errors occur within the function.

If there is already a unit definition with the same Code, that previous definition will be overwritten by the new one.

EXAMPLES

estConvertAddUnit("in", "inch", .0254, "m", "length") adds a unit identified by "in" named "inch" which is defined as .0254 meters and that describes length.

estConvertAddUnit("inch", "", 1, "in", "") adds a Synonym-type unit named "inch" as a synonym for the unit "in". Its category will be that of the most-recently-added unit.

estConvertAddUnit("length", "", 1, "m", "length") adds a Category-type unit which will be used to help determine the category described by other types of unit definitions. Notice that the Code and Category are the same. Any measurement which can be converted to meters ("m") will be described as "length".

estConvertAddUnit("m", "meter", 1, "m", "length") adds a Base-type unit on which other unit definitions may be based. Notice that the Code and Definition are the same--the unit is defined in terms of itself.

SEE ALSO

[estConvertAddPrefix](#)

[estConvertAddReplacement](#)

estConvertAddPrefix Function

Define a prefix such as "kilo" which can be used to modify any of the known units within measurement expressions.

SYNTAX

```
estConvertAddPrefix(vstrCode, vstrName, vdblValue)
```

REMARKS

Arguments: vstrCode is the code or unique identifier of the prefix. vstrName is the name and/or description of the prefix. When vstrName is blank, vstrCode is used as the Name. vdblValue is the multiplier value of the prefix.

Return Value: Function returns an empty string upon success. It returns the error message as a string when errors occur within the function.

If there is already a prefix definition with the same Code, that previous definition will be overwritten by the new one.

EXAMPLES

estConvertAddPrefix("k", "kilo", 1000) defines the prefix "k" named "kilo" with a multiplier value of 1,000.

estConvertAddPrefix("mega", "", 1000000) defines the prefix "mega" named "mega" with a multiplier value of 1,000,000.

SEE ALSO

[estConvertAddUnit](#)

[estConvertAddReplacement](#)

estConvertAddReplacement Function

Defines text which will be replaced by something else wherever it occurs within measurement expressions.

SYNTAX

`estConvertAddReplacement(vstrFind, vstrReplace, vintCompare)`

REMARKS

Arguments: `vstrFind` is this string which will be replaced by something else wherever it occurs within measurement expressions. `vstrReplace` is the text which will replace every occurrence of `vstrFind`. `vintCompare` is the Visual Basic comparison type used to find text that matches `vstrFind`.

Return Value: Function returns an empty string upon success. It returns the error message as a string when errors occur within the function.

If there is already a global text replacement definition whose Find text is the same as `vstrFind`, that previous definition will be overwritten by the new one.

EXAMPLES

`estConvertAddReplacement("feet", "foot", 1)` defines "foot" as the text that will replace "feet" wherever "feet" appears within measurement expressions. For example, the measurement expression "acrefeet/hr" would be changed to "acrefoot/hr" before being interpreted.

SEE ALSO

[estConvertAddUnit](#)
[estConvertAddPrefix](#)

SI System Base Units

length: meter (m): The SI unit of length, being the length of the path travelled by light in vacuum during a time interval of $1/(2.997\ 924\ 58 \times 10^8)$ second.

mass: kilogram (kg): The SI unit of mass defined as a mass equal to that of the international platinum-iridium prototype kept by the International Bureau of Weights and Measures at Sevres, near Paris. (This is the only base unit still defined by an artifact.)

time: second (s): The SI unit of time equal to the duration of 9 192 631 770 periods of the radiation corresponding to the transition between two hyperfine levels of the ground state of the cesium-133 atom.

electric current: ampere (A): The SI unit of electric current. The constant current that, maintained in two straight parallel infinite conductors of negligible cross section placed one metre apart in vacuum, would produce a force between the conductors of 2×10^{-7} N m^{-1} .

temperature: kelvin (K): The SI unit of thermodynamic temperature equal to the fraction $1/273.16$ of the thermodynamic temperature of the triple point of water. The magnitude of the kelvin is equal to that of the degree celsius (centigrade), but a temperature expressed in degrees celsius is numerically equal to the temperature in kelvins less 273.15. The former name degree kelvin (symbol degK) became obsolete by international agreement in 1967.

luminous intensity: candela (cd): The SI unit of luminous intensity equal to the luminous intensity in the perpendicular direction of the black-body radiation from an area of $1/600\ 000$ square metre at the temperature of freezing platinum (2042 kelvins) under a pressure of 101 325 pascals.

amount of substance: mole (mol): The SI unit of amount of substance. It is equal to the amount of substance that contains as many elementary units as there are atoms of 0.012 kg of carbon-12. The elementary units may be atoms, molecules, ions, radicals, electrons, etc., and must be specified.

estConvertSpecial Function

Perform measurement conversions to and/or from combinations of major and minor units. Also supports the input and output of fractional numbers and the rounding of results.

SYNTAX

estConvertSpecial(vvarFm, vvarToMajor, vvarToMinor, vvarPrecision, vvarAsFraction)

REMARKS

Arguments: vvarFm is a string containing one or more measurement expressions which represent the same type of physical measurement. vvarToMajor (and optionally vvarToMinor) name the measurements into which the vvarFm measurement expressions will be converted. When vvarToMajor is non-blank and vvarToMinor is blank, the vvarFm measurement expression will be converted to the vvarToMajor measurement. When both vvarToMajor and vvarToMinor are non-blank, the vvarFm measurement expression will be converted to the vvarToMajor units--the integer part will be expressed in terms of the vvarToMajor unit and the fractional part is expressed in terms of the vvarToMinor units. When vvarPrecision is numeric, the fractional part of the converted measurement is rounded to the nearest 1 / vvarPrecision. The fractional part of the result (if any) is expressed in decimal form when vvarAsFraction is False or as a fraction when vvarAsFraction is non-False.

Return Value: The function returns a numeric result when the vvarToMinor is blank and vvarAsFraction is False. It returns a measurement expression as a string in most other cases. When errors occur, the error message is returned as a string of the form "Error:"

EXAMPLES

estConvertSpecial("3.4567m", "", "", 64, True) converts 3.4567 meters to feet, rounding the result to the nearest 64th of a foot--it returns "11 11/32"

estConvertSpecial("3.4567m", "", "", 64, False) performs the same conversion but returns the result in decimal form--it returns 11.34375.

estConvertSpecial("3.4567m", "", "in", 64, True) converts 3.4567 meters to feet and inches, rounding the result to the nearest 64th of an inch--it returns "11' 4 3/32"

estConvertSpecial("3.4567m", "", "in", 64, False) performs the same conversion but returns the result in decimal form--it returns "11' 4.09375"

estConvertSpecial("11' 11 15/16", "m", Null, Null, Null) converts 11 feet and 11 15/16 inches to meters, returning 3.6560125.

SEE ALSO

[estConvert](#)
[estConvertString](#)

estConvertEnum Function

Enumerates the units represented by a measurement expression.

SYNTAX

```
estConvertEnum(vvarUnits)
```

REMARKS

Arguments: vvarUnits is a string containing the symbolic portion of a measurement expression. The measurement expression must not contain any numeric portion.

Return Value: Function returns a string describing the measurements named in the argument. Function returns Null when its argument is Null.

EXAMPLES

estConvertEnum("KW*hr") returns "kilowatt*hour".

SEE ALSO

[estConvert](#)

estConvertFindCat Function

Determines the primary physical measurement represented by an expression.

SYNTAX

```
estConvertFindCat(vvarUnits)
```

REMARKS

Arguments: vvarUnits is a string containing the symbolic portion of a measurement expression. The measurement expression must not contain any numeric portion.

Return Value: Function returns a string naming the primary physical measurement described by the measurement expression in the argument. Function returns Null when its argument is Null.

Note: This function determines the physical measurement category by finding a Category-type Unit whose definition refers to the same base units with the same exponents. When no such category is found, it looks for the category of the reciprocal of the measurement expression. If it finds such a category, its name will be returned preceded by "reciprocal of".

EXAMPLES

estConvertFindCat("meters") returns "length"

estConvertFindCat("KW*hr") returns "energy"

estConvertFindCat("second/ft") returns "reciprocal of velocity"

SEE ALSO

[estConvert](#)
[estConvertEnum](#)

estConvertCheck Function

Performs several consistency checks of the currently-defined units, prefixes, and global text replacements.

SYNTAX

```
estConvertCheck()
```

REMARKS

Consistency Checks: This function does the following:

- * Finds measurement definitions whose Code and/or space-stripped Code is the same as that of another unit. Duplicate unit codes should never occur, and duplicate space-stripped codes should normally be removed before definitions are made publicly available.
- * Finds prefixes, and combinations of prefixes and units, which cannot be parsed by the conversion program.
- * Finds units which cannot be parsed by the conversion program.
- * Displays warnings about Units whose user-specified categories are unknown or which differ from the calculated category.
- * Finds cases where there are multiple Category-type units whose definitions equate to the same combination of base units.
- * Attempts to determine the category of definitions whose user-specified Category is "unknown".

Arguments: Function does not accept any arguments.

Return Value: Function returns True when no errors are found within the current measurement definitions. Returns False when errors are found within the definitions. The function will perform all of its consistency checks before returning a value; it does not stop when it encounters errors.

EXAMPLES

```
estConvertCheck()
```

estConvertLoadMultiLines Function

Loads the unit definitions, prefix definitions, global text definitions, and data files specified by the argument.

SYNTAX

```
estConvertLoadMultiLines(vstrLine, vfInteractive)
```

REMARKS

Arguments: vstrLine is a string consisting of one or more commands. Each command is in the form of a Visual Basic function call; each command must appear on a separate CR-NL-separated line. The following commands are recognized:

estConvertAddBUILTIn loads the built-in unit, prefix, and global text replacement definitions into memory. These definitions are loaded by default when the first measurement conversion related function is called, but they can be cleared by calling estConvertClearAll then setting estConvertInitDone to True. Example:

```
estConvertAddBUILTIn
```

estConvertAddFiles loads the unit, prefix, and global text replacement definitions from one or more text files. The definitions must be in the form of calls to the estConvertAddUnit, estConvertAddPrefix, and estConvertAddReplacement functions. Example:

```
estConvertAddFiles "ESunits.Dat"  
estConvertAddFiles "Custom*.Dat"
```

estConvertAddUnit adds a new unit definition into memory. The command must be in the form of a call to the estConvertAddUnit function. Example:

```
estConvertAddUnit "turn", "", 2, "pi*rad", "plane angle"
```

estConvertAddPrefix adds a new prefix definition into memory. The command must be in the form of a call to the estConvertAddPrefix function. Example:

```
estConvertAddPrefix "m", "mega", 1000000
```

estConvertAddReplacement adds a new global text replacement definition into memory. The command must be in the form of a call to the estConvertAddReplacement function. Examples:

```
estConvertAddReplacement "pound", "lb", 1
```

Other lines which do not begin with one of these commands are silently ignored.

When vfInteractive is True, any errors are displayed to the user in a message box, then the user has the choice of whether they want to continue or stop the operation. When vfInteractive is False, any errors cause processing to stop and the error message is returned in a string.

Return Value: Function returns an empty string upon success, and it returns the error message as a string when errors occur.

EXAMPLES

```
Dim strCRNL As String
strCRNL = Chr$(13) + Chr$(10)
Dim strProg As String
strProg = strProg + "estConvertAddBuiltIn" + strCRNL
strProg = strProg + "estConvertLoadFiles ""ESUnits*.Dat"" + strCRNL
Debug.Print estConvertLoadMultiLines(strProg)
```

SEE ALSO

[estConvertAddUnit](#)

[estConvertAddPrefix](#)

[estConvertAddReplacement](#)

Definitions Window

The Definitions window displays information about all of the currently-defined units, prefixes, and global text replacements. Several Options menu items control the content and format of this list:

Format Index Format definitions like the index of a book.
Format Alpha Format definitions in an alphabetical list.
Format Descriptive Format definitions as descriptive English sentences.

By Name List definitions by name.
By Category List definitions by category.

Show Replacements Include global text replacements in definitions display.
Show Prefixes Include prefixes within list.
Show Units Include non-Synonym and non-Category type unit definitions.
Show Synonyms Include Synonym-type unit definitions.
Show Categories Include Category-type unit definitions.

Double-click an entry in the list or press Enter with it highlighted to have that unit or prefix added to the most-recently-active box in the Calculator Window.

Note: Entisoft Units starts much faster when the Definitions window is closed.

Calculator Window

The Calculator Window converts measurements from one unit to another. Enter the measurement expressions into the Convert From and Convert To boxes. The Convert From box accepts any of the types measurement expressions described in the [Overview](#). The Convert To box accepts similar measurement expressions, except that they cannot contain a numeric component.

The following options control the display of results in the Result box:

Options menu Result Types item: When checked, all user input and calculated results are shown with the physical measurements that they represent. For example, any measurements of the form "length per time" (e.g. "miles per hour") are described as "speed".

Options menu Result Verbose item: When checked, the units mentioned in all input and result expressions are enumerated. For example, the program will tell you that "kg*m²" was interpreted as "kilogram meter²".

Options menu Result in Base Units item: When UNchecked, any remaining units are returned in the standard SI units for the physical measurement. For example, measurements of energy such as "kilowatt hours" are displayed in joules (the SI unit of energy). When checked, results are displayed in terms of the fundamental base units (kilograms, meters, seconds, amperes, etc.)

The result window changes colors to indicate when units are matched or mismatched or when there is an error. It is cyan when no measurement expressions have been entered. It is red when an error has occurred or one of the named units is unknown. It is green when both measurement expressions represent the same type of physical measurement. It is yellow when the two measurement expressions represent different types of physical measurements.

The results are formatted as appropriate to show as much information as possible within the current size of result window. Results are calculated and displayed as soon as there is a pause in your typing--no need to press {Enter} to perform the calculation.

Program Window

The Program Window accepts commands that do the following:

- * Add new unit definitions.
- * Add new prefix definitions.
- * Add new global text replacement definitions.
- * Load such definitions from text files.
- * Load the built-in definitions.

See the estConvertLoadMultiLines function for details on the available commands. See also the estConvertAddUnit, estConvertAddPrefix, and estConvertAddReplacement functions which are the primary functions called by most programs.

Each command is written in the form of a call to one of the Visual Basic functions responsible for the corresponding operation. In this way, definitions can be copied from the supplemental data file into Program window and work unchanged. Each command should appear on a separate line. Lines which do not begin with the names of one of the recognized commands are silently ignored.

When the Program is blank, Entisoft Units will load the built-in unit, prefix, and global text replacement definitions. When the Program is non-blank, Entisoft Units will only load its built-in definitions if it encounters the `estConvertAddBuiltIn` command within the program.

Tips Window

The Tips window normally alternates between displaying general information about Entisoft Units and descriptions of the currently-defined units and prefixes. It displays this information with a cyan background.

When there is a measurement expression in the Calculator's Convert From box and the Convert To box is blank, the Tips window will alternate between displaying the names related units/categories and displaying that measurement expression converted to all of the related units.

A new tip is displayed when a suitable amount of time has passed since the last was presented. You can also press Ctrl-E or select the Help menu Next Tip command to display the next tip.

Recall Window

The Recall Window records the fifty most recent measurement conversions that were performed by the Calculator. The current calculation is recorded whenever the cursor moves from the Convert To box back to the Convert From box. Calculations are not recorded in the Recall Window when the Recall Window is closed.

Double-click an entry in the Recall list or highlight it and press {Enter} to have that calculator placed back into the Calculator Window. Also, you can press Alt-1 through Alt-9 to recall the first through ninth most recent conversion calculations from the Recall Window.

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Entisoft Units Fact Sheet

ENTISOFT UNITS V1.0 FACT SHEET

Executive Summary

- * Entisoft Units is a sophisticated measurement conversion calculator for Microsoft Windows and Microsoft Office. It recognizes any combination of the approximately 500 built-in SI, metric, English, and historical measures.
- * The package includes an interactive Windows executable program for performing measurement conversions.
- * The package also includes Microsoft Access and Excel Add-In versions. These Add-Ins provide both function call libraries (APIs) and simple interactive calculators.
- * The registered package includes Visual Basic source code to all versions, including a port for Microsoft Project.
- * Single user price is \$39.95. Site licensing prices are detailed below.
- * The shareware (trial) package is available on CompuServe, America Online, and our Entisoft BBS in a file named ESUNITS.ZIP. The miniature shareware package is available in a file named ESUNITM.ZIP.

General Information

- * Uses a natural language interface for expressing measurements. For example, converting from "10 cups" to "liters" returns 2.37.
- * Measurements can be preceded by any of 50 known prefixes.
- * Measurements are known by their common names, abbreviations, acronyms, and synonyms. For example, "kilometers per hour" can be entered as "KPH", "km/hr", "kmeters/hour", "kilometers per hour", etc.
- * Understands any combination of the known units and/or prefixes. For example, converting "45 ft*lbs/second²" (a measure of force) to "newtons" returns 6.22.
- * Sophisticated parser uses case sensitivity and other hints to help interpret the measurements.
- * Returns the remaining units when the units being converted do not represent the same type of physical measurement. For example, converting "12 joules" (a measure of energy) to "newtons" (a measure of force) returns "12 meters" (a measure of length).
- * Understands numbers expressed in either decimal form or as fractions.
- * Powerful text replacement definitions extend the variations of names and abbreviations recognized by the program.

Windows Executable Program (Visual Basic Version)

- * Features interactive calculator, list of known units and prefixes, tip wizard, history list, and user-defined conversion factors box.
- * All user input and calculated results are shown with the physical measurements that they represent. For example, any measurements of the form "length per time" (e.g. "miles per hour") are described as "speed".
- * The units mentioned in all input and result expressions can be enumerated. For example, the program will tell you that "kg*m²" was interpreted as "kilogram meter²".
- * Any remaining units are returned in the standard SI units for the physical measurement.

For example, measurements of energy such as "kilowatt hours" are displayed in joules (the SI unit of energy). Results can optionally be displayed in terms of the fundamental base units (kilograms, meters, seconds, amperes, etc.)

- * Result window changes colors to indicate when units are matched or mismatched or when there is an error.

- * Several menu items control the content and format of the units and prefixes list.

- * User-defined unit and prefix definitions can be entered into the program directly or read from a text file.

- * Results are formatted as appropriate to show as much information as possible within the result window.

- * Results are calculated and displayed as soon as there is a pause in your typing--no need to press {Enter} to perform the calculation.

Shareware Package

- * Contains Windows executable, Access Add-in, and Excel Add-In trial versions of Entisoft Units.

- * Installation program allows users to setup our software quickly and it does not mess the Windows environment in any way.

- * Installation program is optional, allowing more experienced users to try our software directly.

- * Available on CompuServe in the MSMASIC, MSACCESS, MSEXCEL, and other Forum Libraries.

- * Does not include the required VBRUN300.DLL file which is freely available from several sources including our BBS.

Registered Package

- * Registered users receive the complete Visual Basic source code to all versions.

- * Includes an additional data file with more than twenty categories of technical data.

- * Registered users can download the latest registered distribution of Entisoft Units from our BBS.

- * Does not contain the "nag" messages which appear each time that the Shareware versions are opened and closed.

- * Supplemental data file contains the full name, common names, and ticker symbol definitions for most internationally-traded currencies. Users and developers must supply their own daily currency values as appropriate, but this example shows you the necessary format for the data.

Microsoft Excel Version

- * Conversion functions can be called from within Worksheets, Modules, Charts, and Macros.

- * Includes a simple calculator for performing measurement conversions interactively.

Microsoft Access Version

- * Conversion functions can be called from within Queries, Forms, Reports, and Modules.

- * Includes a simple calculator for performing measurement conversions interactively.

- * In the registered package, the Access version contains all of the conversion factors, prefixes, and other definitions in the form of an Access database Table.

Macintosh Users

- * We do not officially support the use of our software on Macintosh computers, nor have we thoroughly tested our software on a Macintosh, however...
- * Most of our Excel Add-In functions work with Excel 5.0 for Macintosh because it does not use any Windows-specific functions.
- * We believe that most of functions in the Project version Entisoft Units will work with Microsoft Project for Macintosh for the same reasons.
- * You can try the Excel Add-In from our Shareware Distribution if you have any questions about whether the features you need work when our software is used on a Macintosh.
- * We cannot offer Entisoft Units on Macintosh-format floppy diskettes at this time so Mac users will need to acquire our software electronically.
- * Entisoft Units is distributed in a compressed PKZIP v2.04g format file. Mac users can get a PKZIP uncompression program from either CompuServe or our BBS.

Developer Considerations

- * Each version consists of about 10,000 lines of documented Visual Basic/VBA source code.
- * The Excel Add-In and secured Access Add-in versions can be freely distributed with your custom applications.
- * The source code can be compiled into your Visual Basic executables. It can also be included within your Excel Add-Ins and secured Access applications, as long as it is not shared with unregistered users.
- * Clear separation between back-end measurement conversion functions and front-end user interface functions.
- * All versions employ error detection and correction so that you are not required to safeguard your use of our functions with error trapping.
- * Source Code contains several generally useful functions from our library.
- * When measurements cannot be recognized, the functions return a string error message suggesting possible alternatives which either sound alike or partially match the unknown name.
- * Additional user-defined definitions can be easily embedded within the source code itself.
- * Contains functions for inserting new conversion factors/prefixes and for modifying the existing definitions. Also contains functions for reading conversion factors from a text file.
- * Conversion factors are read from text files in the form of Basic function calls. This single format for specifying unit and prefix definitions means that they can be freely moved between the source code, external text files, and the user-defined definitions box in the Windows executable program.
- * Functions cache certain important operations to improve the performance of subsequent calls.
- * The names of all "public" functions/subroutines, constants, and user-defined types are prefixed with "est" to help avoid conflicts with your existing code.
- * Conversion functions can determine if cycles exist within the unit and prefix definitions.
- * The Visual Basic program does not currently require any custom controls (VBXs, OCXs, etc.) nor dynamic link libraries (DLLs) other than VBRUN300.DLL. This means that developers can use the Standard Edition of Visual Basic to modify, run, and compile the software.

API Overview

* estConvert performs measurement conversions given a numeric measurement, the units of that measurement, and the desired units for the result. For example, estConvert(5, "feet", "meters") converts 5 feet into meters, returning 1.524.

* estConvertSpecial performs measurement conversions to and/or from multiple related units, as well as supporting fractional numbers and the rounding of results. For example, estConvertSpecial("5' 11 13/16\"", "m", "", 1000, False) converts 5 feet 11 13/16 inches into meters, returning 1.824.

* estConvertString performs similar conversions given a string describing the conversion to be performed. For example, estConvertString("5 feet to meters") performs the same conversion as in the above example.

* estConvertEnum enumerates the units represented by an expression. For example, estConvertEnum("KW*hr") returns "kilowatt hour".

* estConvertFindCat determines the physical measurement represented by an expression. For example, estConvertFindCat("KW*hr") returns "energy".

* estConvertCheck performs several consistency checks of the currently-defined measurements and prefixes.

* estConvertLoadFiles loads the unit and prefix definitions contained within one or more text files.

* estConvertAddUnit registers a new conversion factor which Entisoft Units can use within conversion calculations. For example, estConvertAddUnit("in", "inches", 1/12, "foot", "length") defines a unit of length named "inches" with identifier "in" as 1/12 of a foot.

* estConvertAddPrefix registers a new prefix which Entisoft Units can use within conversion calculations. For example, estConvertAddPrefix("m", "mega", 1000000) adds the prefix "mega" identified by "m" as 1,000,000 (10^6).

* estConvertAddReplacement registers a new text string replacement which Entisoft Units will attempt to apply during each conversion calculation. For example, estConvertAddReplacement("inch", "in", 0) adds the synonym "inch" which is replaced everywhere that it occurs within expressions by "in".

Miscellaneous

- * Built-in definitions include several physical constants.
- * Supports the conversion of temperatures which have different base scales.
- * Supports the conversion of resistor color codes to the corresponding resistance values.

Pricing

Individual use license is \$39.95.

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\$30 each for 2-9 computers

\$24 each for 10-24 computers

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