OmniCon 96

Welcome to OmniCon 96!
OmniCon 96 is a very useful and powerful program that allows the user (that's YOU!) to convert any unit of virtually any physical quantity into another unit of the same quantity.
In other words, it allows you to very quickly convert between teaspoons and tablespoons, litres and gallons, or torr's and psi's.
Every physical quantity (such as volume, mass, length, time etc.) known to man is included, and within those quantities, there are many, many units.
OmniCon provides you with a simple and convenient way to interchange between these units very quickly with a high degree of accuracy.
Anybody that finds themselves converting between the Imperial system and the Metric system frequently in their field of work will find OmniCon invaluable.

How OmniCon 96 is Different

There are a lot of conversion utilities out there, but none can match the ease-of-use, the speed, and the breadth of OmniCon.

First of all, **OmniCon is a fully 32 bit, native Win95 application**. OmniCon is super-easy to use, very powerful, and offers many conveniences to the user.

In addition, I believe that OmniCon 96 is **the MOST accurate** unit conversion utility available. It is highly tested, and the conversion factors are from the Government of Canada.

OmniCon 96 also contains the most units out of any of the unit converters on the market today. It is possible to perform *millions* of unique conversions.

I wrote OmniCon because I'm in a science program at university, and I find it tedious to always have to look up conversion formulae and factors in order to convert units back and forth.

OmniCon gets away from all of that hassle.   You simply choose a physical quantity, indicate what unit the initial value is in, and choose the unit you want the final value in.   PRESTO!   You've got your converted value!
It's very easy, convenient, and a valuable time-saver if you're ever doing many (or even a few!) conversions!

Who Should Use OmniCon 96?

Many people, ranging from doctors, scientists, homemakers, engineers, teachers, and students to surveyors, architects and computer nerds are potential users of OmniCon because their daily lives often involve conversion.

Students can ALWAYS find something to convert (or their teachers can GIVE them something to convert!), and engineers breathe conversion.   Just think how useful and easy it would be to just tap in a couple of numbers to instantly convert between one unit and another.

This power is right here in OmniCon.

Step by Step - Performing Your First Unit Conversion

(Click the picture below for more information about specific screen elements.)

We will use a hypothetical conversion for our example. Say you want to convert 167.5 yards into metres. Here's how to do it:

1. From the first drop-down list (underneath the label *Select Quantity*) select **Length**.

2. From the second drop-down list (underneath the label *Select Initial Unit*) select **yard (yd)**.

3. From the third drop-down list (underneath the label *Select Final Unit*) select **metre (m)**.

4. In the text box labeled *Enter Initial Value*, enter your known value (i.e. **167.5**)

5. **Voilà!** You have successfully performed your first conversion! Now you see just how easy it is to use OmniCon 96!

About the Author

Phil Jones attends Queen's University in Kingston, Ontario, Canada. His main interests are the life sciences, medicine and computers.

Registration

OmniCon 96 **is not** free software. It is offered as a "shareware" program which means that you are allowed to evaluate it for a period of up to 21 days. If you find OmniCon 96 useful and decide to keep it, you must send the registration fee of $10 US or $12 CDN to the address on the registration form. If not, you must uninstall OmniCon 96 from your hard drive. (OmniCon will not run after 21 days of use.)

By paying for this software, you are not only receiving an excellent piece of software that took countless hours of my time to write, you are also supporting a young student work his way through university and medical school. I greatly appreciate your honesty and integrity, and look forward to hearing from you soon.

<u>Click Here to see the Registration Form</u>

To register OmniCon 96:

Internet Delivery (easiest and cheapest):
Print out this help topic and fill out the form (or put your name, address and e-mail address on a piece of paper) and send it and a cheque (made out to **Phil Jones**) for $10 US or $12 CDN to the address below. The registration key for OmniCon 96 will be e-mailed to your location upon receipt of payment.

Mail Delivery (harder and more expensive):
If you wish a disk, shipping and handling charges come to $5. Therefore, for each copy of OmniCon 96 you wish to purchase, send a cheque (made out to **Phil Jones**) for $15 US or $17 CDN along with this form (or the same information on a separate piece of paper) to the address below. You will receive a disk in the mail within two weeks of receipt of your order. However, since all that is needed to make OmniCon 96 "registered" is a code, sending a disk is usually redundant since the unregistered version of OmniCon is available everywhere.)

Site Licenses:
Arrangements can be made for a site licensing agreement. Please e-mail me (addresses below) for more details.

OmniCon 96 Registration Form:

Name:_____

Address:_____

City:_____

Province/State:_____

Country:_____

Postal/Zip Code:_____

Telephone #:_____

E-Mail Address:_____

Copies:____ **Total Funds Sent: $**_____

Registration Code ____   or   Disk ____

(If you have an e-mail address, I will send the code there. Otherwise, I will send it in the mail.)

Mail all information to:

OmniCon 96
37 Haviland Dr.
West Hill, Ontario
M1C 2T6
CANADA

E-Mail: jonesp@biology.queensu.ca   or
**   3pmgj@qlink.queensu.ca**

Quantity Selection Box

Click this box to show a list of the available physical quantities (i.e. Length, or Volume).
If you don't see a desired quantity, click on File | Preferences.. and select the Units tab.

Unit Selection Boxes

Click on these boxes (once you've selected a Physical Quantity from the box above) to select the initial and final units. For example, if you have 32 centimetres and wish to convert them into inches, click on "Centimetres" in the first box (initial unit), and "Inches" in the second box (final unit).

Initial Value Box

Type the initial value that you have here. For example, if you have 32 centimetres and wish to convert them into inches, type "32" here.

Converted Results Box

This box will show the result of your conversion once it is done.

Status Bar

The status bar shows the current number of conversions you have recorded (left pane), and allows you to record the current conversion (by clicking on the right pane).

NOTE: You cannot record a conversion unless all of the required fields (Physical Quantity, both Units, and Initial Value) are filled in.

Current Shell Program

To enter a program (such as a calculator) that will run when you click on <u>V</u>iew | <u>R</u>un Shell Program (Shortcut key: CTRL+ R), click the ellipsis button at the far right.

Click this button to set a favourite program to run.

Font Selection

Click the ellipsis at the right to select which font you would like to use to display and print OmniCon's conversion records.

Select All / Deselect All

Click either to select or deselect all of the quantities listed.

Add New Unit

Click to add a user-defined unit to the units selected in the right-hand list box (for the current quantity).

Lists all of the quantities. Click one to select the units that are available.

Click a unit to select / deselect it. Those units selected will show up when you click on the appropriate quantity in the main screen.

NOTE: The new units will not be updated until you click on the quantity box (on the main screen) again. For example, if you change the units in Acceleration, it will be necessary to once again click Acceleration in the first box on the main screen before these changes are made.

Enter a unit name (such as "Widget") here.

Enter the multiplication factor to get to the unit displayed on the right for the new unit. For example, if one "Widget" equals 10 of the specified unit, enter 10 here.

Select All / Deselect All

Click either to select or deselect all of the units listed in the right-hand list box.

Decimal Places

Move the slider from left to right to select the number of decimal places you would like in your converted result. (minimum = 0, maximum = 8)

If you prefer to have your numbers in scientific notation (10E+5), then click it here. If not, click "Regular"

Quantity Selection

Click on those quantities that you use the most and would like to see in the main window. You can always come back and turn on seldom used quantities again!

Metric Prefixes

Multiplying Factor	Prefix	Symbol
1 000 000 000 000 000 000 = 10E18	exa	E
1 000 000 000 000 000 = 10E15	peta	P
1 000 000 000 000 = 10E12	tera	T
1 000 000 000 = 10E9	giga	G
1 000 000 = 10E6	mega	M
1 000 = 10E3	kilo	k
100 = 10E2	hecto	h
10 = 10E1	deca	da
0.1 = 10E-1	deci	d
0.01 = 10E-2	centi	c
0.001 = 10E-3	milli	m
0.000 001 = 10E-6	micro	μ
0.000 000 001 = 10E-9	nano	n
0.000 000 000 001 = 10E-12	pico	p
0.000.000.000.000.001 = 10E-15	femto	f
0.000.000.000.000.000.001 = 10E-18	atto	a

Physical Constants

Constant	Value and Unit
Atomic mass unit	1.6605402E-27 kg
Avogadro's Number	6.0221367E+23 1 / mol
Boltzmann's constant	1.38066E-23 J/K
Coulomb's constant	9.0E+9 N · m² / C²
Electron rest mass	9.1093897E-28 g
Electronic charge	1.60217733E-19 C
Faraday's constant	9.6485309E+4 C / mol
Gas constant (I)	8.3145 J / K · mol
Gas constant (II)	0.082058 L · atm / K · mol
Gravitational constant	6.67E-11 N · m² / kg²
Neutron rest mass	1.67495E-24 g
Pi	3.1415926536
Planck's constant	6.6260755E-34 J · s
Proton rest mass	1.672623E-24 g
Radius of moon	1.74E+6 m
Radius of earth	6.38E+6 m
Speed of light (vac.)	2.997925E+8 m / s

32 Bit Code

OmniCon 96 is a fully 32 bit application produced with Visual Basic 4.0. Therefore, it is a native Windows 95/Windows NT application, and carries with it all of the advantages associated with 32 bit apps such as:
- faster processing
- better memory management
- using the registry to store settings

Improved Accuracy

OmniCon 96's conversion engine has been revamped using the latest conversion guide available from the Canadian Government. (See <u>References</u>)

More Configurable

It is now possible to set the following options under Eile | Preferences:

Quantities - It is possible to select which quantities are available, so seldom-used quantities can be kept out of the list and therefore increase your productivity.
Font for Printing Conversion Records - Any font can be used for displaying the conversion records you have made on the screen and on the printer.
Decimal Places - Up to 8 decimal places can be used for displaying your converted result.
Scientific Notation or Regular Formatting - You have the choice!
Shell Program - The Windows calculator is the default shell application, but this can changed to whatever you like.
Verification of Unsaved Conversion Records - If you have recorded conversion records and have not saved them, when you try to exit, OmniCon can ask you if you really want to quit without saving. In addition, you can specify whether or not you want OmniCon to automatically provide you with a "Save As" dialog box.

Conversion Records

OmniCon 96 has added a new feature which allows you to save and print conversions that you wish to keep. Records can be saved as ASCII text files (*.txt), or Rich Text Format files (.rtf) for flexibility.

Status Bar

A new screen element is the **Status Bar** which allows you to view conversion records, add a conversion record, or change the number of decimal places (and preferences).

Show What's This Help

You can now obtain help on most of the screen elements by clicking on the Help | Show What's This menu item.

Uninstalling OmniCon 96

You can uninstall OmniCon 96 by deleting the folder in which you put OmniCon 96 when installing it (as long as there's nothing else in there that you want!). For example, if you originally put the OmniCon files in "c:\omnicon 96" then you can just delete this folder using Explorer.

Copying and Pasting Information

The copy and paste features of OmniCon integrate it well with other applications.   Say, for instance, you're doing some work on a spreadsheet.   You have a value for kilometres that needs to be switched into miles.

First, you select the value in your spreadsheet that is in miles, and then you paste it into OmniCon.   In order to do this, the first drop-down box would be in kilometres, and the second drop-down box would be in miles.   When   you select Edit | Paste from the menu bar, (or, click on the right mouse button and select Paste), the value (in kilometres) is pasted into the initial value box, and the corresponding value in miles is calculated and then displayed in the result box.

If you were to now select Edit | Copy, (or, again, click the right mouse button   and select Copy), the value for miles (i.e. the result box) would be copied to the clipboard.

So, in review, the Edit | Copy function copies the value from the result box to the clipboard, and the Edit | Paste function pastes the value on the clipboard to the initial value box.   Try it a few times to get the hang of it.

Always on Top

If (while working on a spreadsheet or in a word-processor) you want to do many conversions while keeping the other application in view, you just click on Always On Top | On, and the main window of OmniCon would always be visible.   This is very useful, so try and make the most of it.   This feature virtually eliminates having to switch back and forth all of the time between several application to find the one you want!

Shell Program

You can specify a program to run as your "shell program". Whenever you select <u>V</u>iew | <u>R</u>un Shell Program (or use the shortcut key: CTRL+R), this program will run. The shell program defaults to the Windows calculator. You set this option in the Preferences dialog box.

A Bit of the History Behind Units

Everything we produce and consume, everything we buy and sell, and everything we see and feel is measured and compared by means of units.   Units enable us to measure the distance we walk, run, or RollerBlade®, the land we own, the time of day, and the brightness of the stars.

Some of these units have become so familiar to us that we take them for granted, seldom stopping to think about how they started, or why they were given the names which they now bear and the sizes which they have.

Centuries ago, the foot was defined as the length of 36 barleycorns strung end to end, and the yard was the distance from the tip of King Edgar's nose to the end of his outstretched hand!   The sun and the moon gave a precise measure of time, but for years the units of volume and weight were in a state of flux and confusion.

Since then, we have come a long way in standardizing our units of measure and weight.   Many standards are now based upon the physical laws of nature, which are reproducible, invariable and neutral.   The yard and metre are now measured in terms of the wavelength of light, and time by the duration of minute atomic vibrations.   This improvement in our standards of measure went hand in hand with the advance of technology, and the one could not have been achieved without the other.

But, even though the basic standards of reference are now recognized by all countries of the world, the units of everyday measure are FAR from being universal.   In many (most) countries, the unit of length is the metre, while in some it is still the yard.   Astronomers enjoy the parsec, physicists use the angstrom, and surveyors use the rod and chain.   But these units of length can be compared with great accuracy because the standard of length is based upon the wavelength of light.

Such standards of reference make it possible to compare the units of measure in one country, or in one specialty, with the units of measure in any other.   Standard units of length, mass and time are the anchors which tie together the different systems of units used in the world today.

Over the years, systems of units have been devised to meet the needs of commerce, industry, and science.   In the English system of units, the inch, foot, and yard are related to each other by the numbers 12, 3 and 36.   And again, in the same system, the ounce, pound, and short ton are related by the numbers 16, 2000, and 32 000.

The same correlation between units exists in the Metric system of measure, except that all units are related to each other in multiples of ten.   Thus, the centimetre, metre and kilometre are related to each other by the numbers 100, 1000, and 100 000.   It is therefore easier to convert metres into centimetres than it is to convert yards into feet.

The English system is very old, and its origins may be traced back to the time of the Egyptians.   By comparison, the Metric system is a newcomer, having been started only about 175 years ago.

The premise behind the Metric system is that once the prefixes to the units are known (such as centi, milli, deca, etc.) then all of the other units can be derived from them.   Therefore, in this program, some of these units are omitted because of simplicity.   (It is rather trivial to convert centimetres into metres or millimetres if a table is provided, which in this case, it is.)

Well, there you go, a brief but interesting (??) portrait of units of past and present.   Hope you enjoyed it, but let's get on to the main event eh?   (Sorry, I'm Canadian!!)
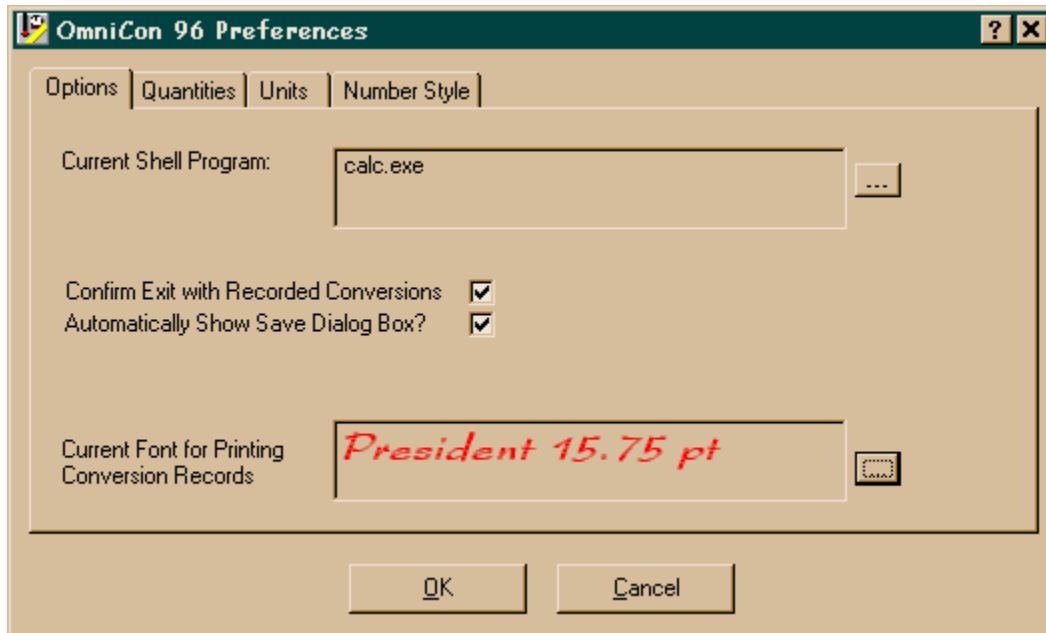
Click these tabs to switch between the Quantities sheet (where you can select which quantities you'd like to have shown) and the General Options page.

Click to save any changes you've made and exit this dialog box.

Click to close the dialog box without saving changes you've made.

Properties Dialog Box

Click the picture below for more information.

File Menu:
>> Properties Dialog Box
Quitting OmniCon 96

Edit Menu:

        Copy Converted Result

        Paste

        Switch

Switching (CTRL+S) switches the two units you currently have selected without changing the initial value. Switching again returns you to where you originally were.

Help Menu:

Contents - Shows help contents

Show What's This - Once you've clicked on this, you can then click on a screen element to get an explanation of its function (doesn't work with all screen elements)

About OmniCon 96 - Shows information about the program

<u>View Menu:</u>

Physical Constants and Metric Prefixes - Shows tables containing these important values.
<u>Run Shell Program</u>

Records Menu:

        Add record - Adds a record to your stored conversion records list

        Purge Records - Purges all of your conversion records

        View Records - Views all of your conversion records

<u>Always On Top:</u>

Switch to ON to float OmniCon 96 above all other windows so that even when you click on another window, OmniCon 96 will remain on top.

Shell Program:
> Runs a specified shell program. <u>See Properties</u>

<u>Confirmation Options:</u>

Check these boxes to decide whether or not OmniCon 96 will notify you if you have recorded records and have not saved them. Additionally, you can decide to automatically show a save dialog box when OmniCon asks you if you wish to save without saving and you answer NO.

<u>Font Selection:</u>

Selection of the default font for display and printing of conversion records.

References

I feel it is important to reference the conversion factors' source, since if there is an error in any of the conversions, it is probably due to out-of-date factors. However, this version has been totally reworked using the latest government figures (below) to minimize any risk. However, if you are doing mission-critical work, I recommend double-checking the first conversion made of each type to see if it agrees with your data. Please e-mail me any discrepancies that you have found while working.

Canadian Metric Practice Guide (National Standard of Canada), 1989 (CAN/CSA-Z234.1-89)

DISCLAIMER OF WARRANTY

THIS SOFTWARE IS DISTRIBUTED "AS IS" AND WITHOUT WARRANTIES AS TO PERFORMANCE OR ACCURACY OR ANY OTHER WARRANTIES WHETHER EXPRESSED OR IMPLIED.   THE USER MUST ASSUME THE ENTIRE RISK OF USING THE PROGRAM.   ANY LIABILITY OF THE SELLER WILL BE LIMITED EXCLUSIVELY TO PRODUCT REPLACEMENT OR REFUND OF PURCHASE PRICE.

User-defined Units

It is now possible to add your own units. Therefore, if you want to add a new unit called "Widget" to Length, you can. Up to 10 new units for each quantity are supported. (See Adding New Units)

Adding New Units

To add a unit, enter the unit name (e.g. "Widget") in the first text box, and enter the MULTIPLICATION factor necessary to get to the "standard" unit (displayed on the right) in the second text box.

For example, in Length, if one Widget equals 10 metres, I'd add "Widget" in the first box, and "10" in the second box.

NOTE: The new units will not be updated until you click on the quantity box (on the main screen) again. For example, if you change the units in Acceleration, it will be necessary to once again click Acceleration in the first box on the main screen before these changes are made.

To get help with the functions contained on these tabs, click the button in the upper right-hand corner (while using OmniCon 96), and then click the item you need help with.

Drag and Drop

It is possible to run as many instances as you like of OmniCon 96. Therefore, if you need to convert between two units (say, radians and degrees), and then take the conversion result and apply it to another conversion (say, feet to centimetres), it is useful to start two instances of OmniCon 96 and then drag the result from the "Converted Result" box of one instance to the "Enter initial value" box of the other instance.

(You can also drag and drop values from OmniCon 96 to any other Win95-compliant application, such as a word processor.)