Using the International Association for Penturners (IAP) "Bushings and Tubes" App for Apple iOS

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A.K.A "Edgar"

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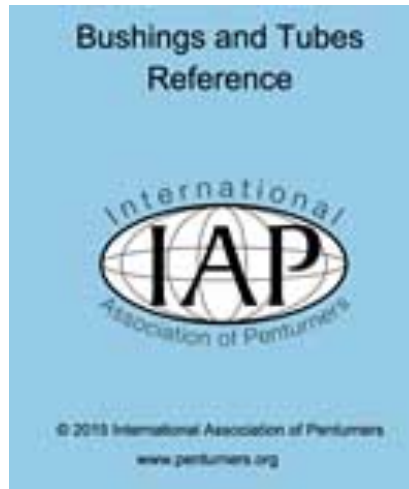
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The International Association of Penturners - 2016

Using the International Association for Penturners (IAP) "Bushings and Tubes" App for Apple iOS

by Edgar Dohmann
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About the App

The Bushings & Tubes app was originally written for Apple iOS devices (iPhone & iPad) by Edgar Dohmann in 2015. It is distributed with a set of data from the IAP Bushings & Tubes charts and it has the ability to automatically download updated chart data from the IAP ftp server.

Instruction, Photo and Bushing information files are not embedded in the app itself. Instead, the app will automatically download those files from the IAP ftp server (if auto-updating is enabled) and store them in the app's local data memory area.

The app will run on any iPad, iPhone or iTouch with iOS8 or later. It includes a drill bit converter and a calculator. It also allows you to create a "Favorites List" of your favorite kits from your favorite suppliers and you can change the supplier order of the database.
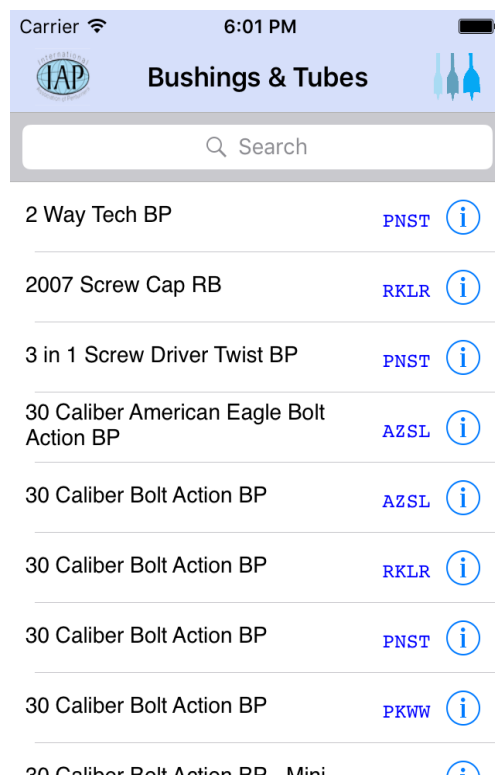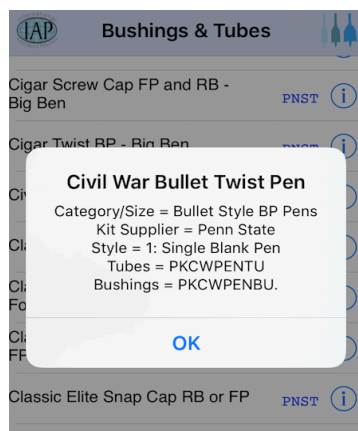
Navigating the App

The app starts up in portrait mode, but all app screens may be viewed in either portrait or landscape mode. The app uses a number of iOS navigation features including navigation bars, buttons and swipe gestures. The user is encouraged to experiment with common iOS gestures for a full app navigation experience. Note: a right swipe will dismiss most screens, including pdf information, photo & bushing drawings. PDF views may be zoomed and panned. If such a view has been zoomed, double tap anywhere on the screen to return it to normal size before attempting to dismiss the screen with a right swipe.

Pen photos can also be zoomed and panned. Use pinch-in and pinch-out gestures for gradual zooming. Use double-tap gestures for rapid in-out zooming. Right swipe outside the image frame to dismiss the view.
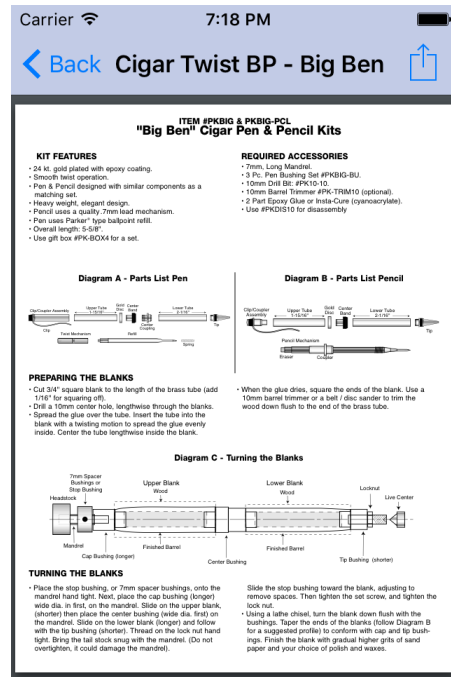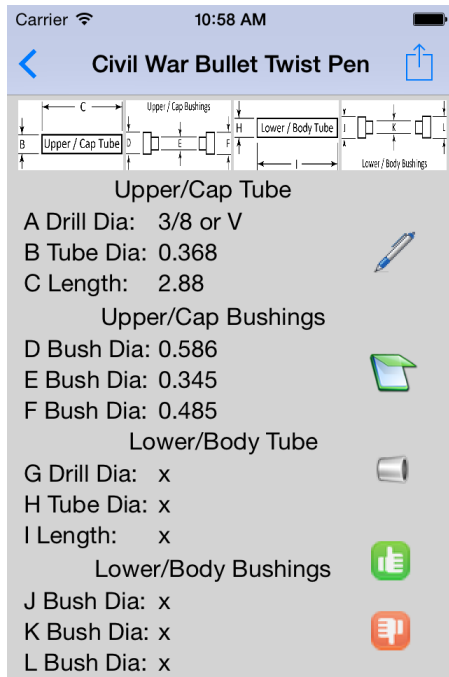
The primary app screen is a searchable table view displaying a scrollable list of all the pen kits listed in the IAP Bushings & Tubes charts. This table also shows a supplier abbreviation (see list at the end of this guide) and an info button for each kit.

Tapping on an info button will pop up a small window summarizing that kit.
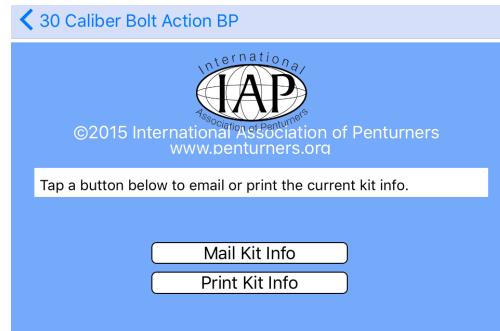
The "Bushings & Tubes" title in the table view header is a clickable target to quickly return the table view to its initial state with a visible search bar. This is the same action as the standard iOS feature of tapping the status bar. However, the status bar is not visible when the device is rotated to landscape mode. Making the title clickable permits this action to be performed in both portrait and landscape orientations.

Selecting a kit name will switch to a detailed screen showing the specific bushing and tube information for that kit. A document icon will appear on the detail screen if assembly instructions are available for that kit. Tap on the document icon to view the instructions in a window that can be zoomed and panned. Similarly, a pen icon will appear if a pen photo is available for that kit and a bushing icon will appear if a bushing drawing is available.

Civil War Bullet Twist Pen

Upper/Cap Tube
A Drill Dia: 3/8 or V
B Tube Dia: 0.368
C Length: 2.88
Upper/Cap Bushings
D Bush Dia: 0.586
E Bush Dia: 0.345
F Bush Dia: 0.485
Lower/Body Tube
G Drill Dia: x
H Tube Dia: x
I Length: x
Lower/Body Bushings
J Bush Dia: x
K Bush Dia: x
L Bush Dia: x

Cigar Twist BP - Big Ben

The "Thumbs Up" and "Thumbs Down" icons on the detail page provide a means for adding or removing kits from your Favorites List.
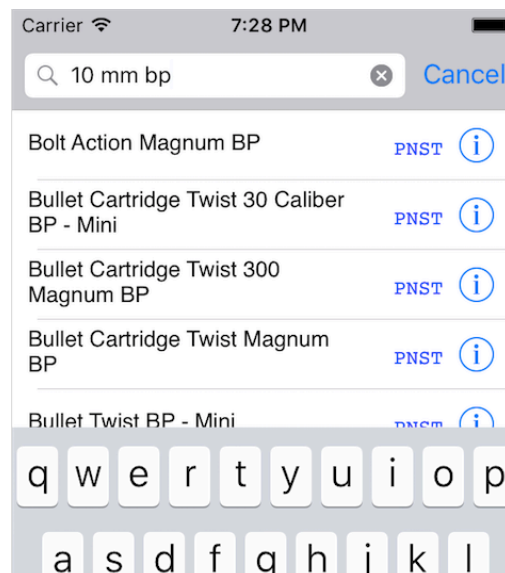
From the detail page, it is possible to email or print (via Air Print) both the summary and detailed information about the kit. If assembly instructions or bushing drawings are available, they may optionally be included when emailing or printing kit information.

Search Feature

Tap inside the search field of the main table view to initiate a case-insensitive search. You can enter multiple search items, separated by spaces, such as "10 mm bp". Such a search will find all kits that contain all of your search items somewhere in the kit information.

Each item entered in the search field is treated as a substring element and the app will search all data fields of each kit to look for matches with your items. Only those kits that have substring matches to all of your search items will be displayed.

For example, the app may find a "10" match in the bushing part number (such as 104759001), a "mm" match in one or more of the Drill Diameter fields and a "bp" match in the Kit Name or Category/Size fields. This type of matching may or may not provide the degree of filtering that you are looking for. If not, try more or less terms or different terms in your search to narrow or expand your search results.

When the Detail View is visible, the four detail category titles (Upper/Cap Tube, Upper/Cap Bushings, Lower/Body Tube and Lower/Body Bushings are all clickable targets. When you select one of those categories, the app will automatically perform a search on those dimensions and return to the main table view to display the search results. (Duplicate dimensions will be omitted from the search.)

Note that these targets are only clickable when the detail view is entered from the main table view and not when entered from the Favorites List.
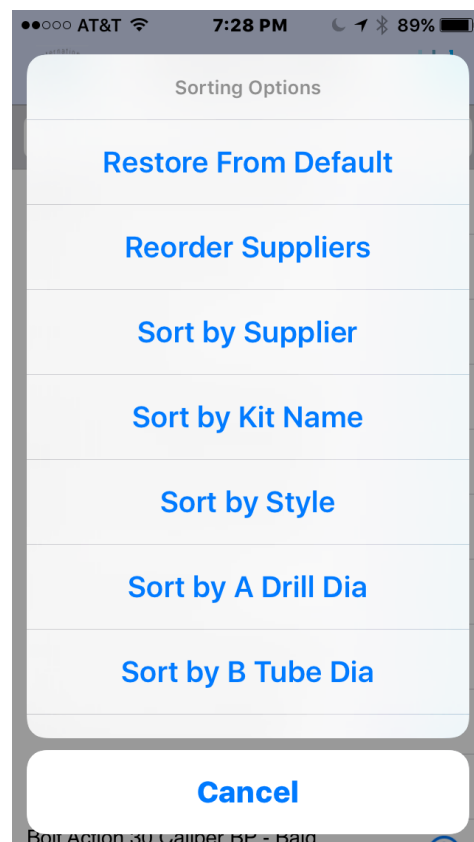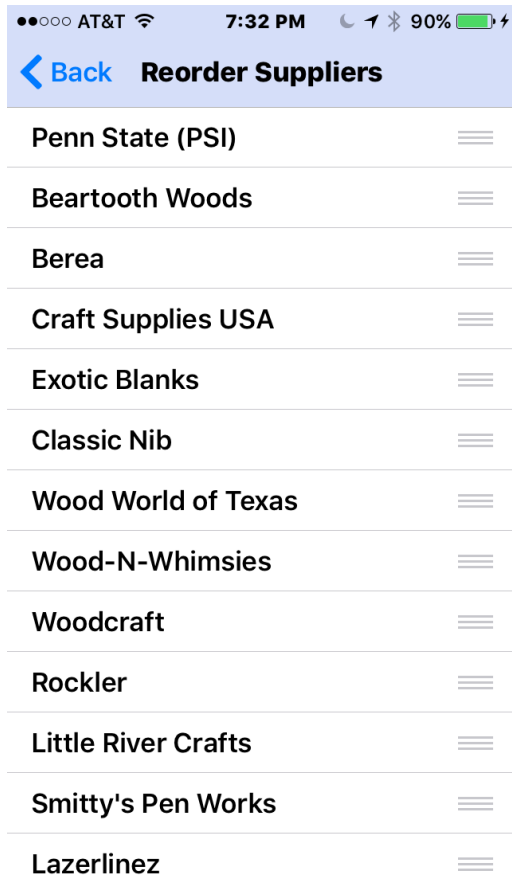
Sorting

The app database initially contains a list of kits, arranged in an arbitrary supplier order. A "left swipe" across the face of the table listing will pop up a list of sorting options. Note that this feature is only available while searching is inactive. (Tap the Cancel button next to the search field to dismiss an active search function).

You can sort the app database by any data category listed in the Sorting Options. Your sorted list will be saved in the app's user preference area and you can restore the list to its original state by selecting the "Restore From Default" option.

This sorting feature is independent of the "Favorites List" and has no effect on your current Favorites List.

The second item in this list (Reorder Suppliers) allows you to rearrange the default supplier order of the database. Selecting that option will pop up a new display:
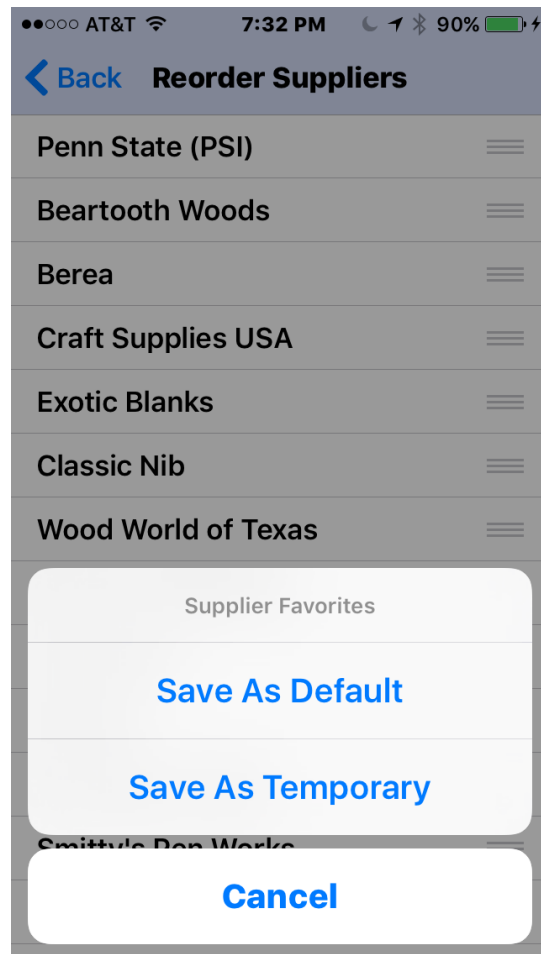
To change the supplier order, touch and drag up or drag down the icon at the far right of the line displaying the supplier(s) you want to move.

When you are through reordering the suppliers, swipe left across the screen to bring up the "Save" display.

You have a choice of saving your reordered list as the new Default database file or saving it as a Temporary file.

If you save it as a Temporary file, it will be similar to the general sorting options. Your reordered list will only last until you do another sort or "Restore From Defaults".

Cancel will simply exit the Reorder screen without making any changes. You can also exit the Reorder screen without making any changes by using a swipe right gesture as well as tapping the Back button.

The app displays the current sort mode and the date of the most recent database update in a viewing area above the search bar of the ta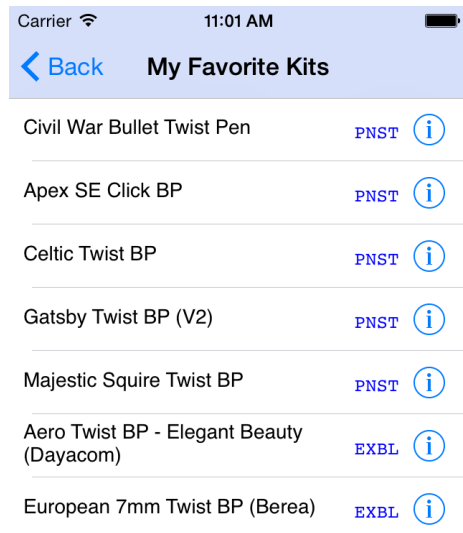ble view. This viewing area is normally tucked away under the table view header to avoid screen clutter. Simply touch-drag the table view down a half-inch or so to view this information.

Favorites List

Scrolling through the complete list of kits in the app can be tedious task and even the search feature might sometimes yield a very large number of kits. The app supports a Favorites List to simplify access to those kits that you use most frequently.

When the detail view of kit info is displayed, simply tap on the "Thumbs Up" icon to add that particular kit from that particular supplier to your Favorites List. A message will confirm that the kit was added. Similarly, the "Thumbs Down" icon will remove the kit from your Favorites List.

A "right swipe" across the face of the main table listing will pop up a similar table view containing only your favorite kits. Note that can only be done while searching is inactive. (Tap the Cancel button next to the search field to dismiss an active search function).

This Favorites List view operates in the same manner as the main table view listing of all kits except that searching and sorting is not supported. Selecting a kit will pop up the detail view for that kit and exiting the detail view will return to the Favorites List. Use the "Back" button to return to the main table view.

Drill Bit Converter

Tapping on the Drill Bits icon in the main screen navigation bar will present a Drill Bit Converter. Fields are provided for entering a drill bit size in Inch Fractional, Inch Decimal, Metric or Gauge sizes. The app will instantly convert your entries to the other 3 formats as you type.

Conversions to Inch Decimal and Metric (mm) will always be exact to 6 decimal places. Conversions to Inch Fractional will be to the nearest 1/64-inch. If the conversion is not exact, a Fractional Rounding Error will be displayed to indicate the amount of error. Similarly, conversions to Gauge bit sizes will be to the nearest gauge bit (107-1 and A-Z). A gauge drill error will be displayed if the conversion is not exact.

Fractional Rounding Errors and Gauge Drill Errors are displayed in decimal inch format. A positive number indicates that the converted size is slightly higher than the exact size while a negative number indicates that the converted size is slightly lower than the exact size.

Any number can be entered in the Inch Decimal and Metric fields. Gauge Drill sizes must be in the range of 107-1 or A-Z. Any number can be entered in the Inch Fractional field, but for proper conversion, fractions should be entered in the format **3/4** and mixed numbers should be entered in the format **1&1/4** (specifically, use an underline ampersand to separate whole & fractional numbers and a slash to separate numerators & denominators). You may use a space instead of an ampersand for the separator if you prefer.

The app will actually do its best to make sense of whatever you enter in the numeric data fields, so there is a wide range of valid data entries and this feature is quite useful for general inch-mm conversions. For example, data entries may be made in either decimal or scientific notation in any of the numeric data fields (including the Inch Fractional field). Fractional notation is only supported in the Inch Fractional field.

Calculator

Tapping on the Calculator icon in the Drill Bit Converter navigation bar will present a Four-Function Calculator Screen. It has all the common 4-function calculator features: Add (+), Subtract (-), Multiply (×) and Divide (÷) as well as buttons to change the sign of the current entry (±), backspace through the current entry (⌫) and clear the Entry & Results fields (AC).

This is a powerful calculator that allows 30-digit numerical entries and performs math computations to at least 30 digits of precision whereas most simple calculators are limited to 10-20 digits. It also has several other unique features.

Most calculators use a single display line for entries and results. This calculator has a separate display line for each. It also has a memory feature, which is not found in most simple calculators. Use the MC (clear), MR (recall) M+ (add to memory) and M- (subtract from memory) to manipulate the memory contents. The calculator memory is also saved to the app's local data space when the calculator is exited so it will be available the next time the calculator appears.

This calculator has a percentage (%) function that is a shortcut method of dividing the current entry field by 100.

It also has a slider to switch the numbers in the Result and Memory fields between Decimal notation and Scientific notation. When using Decimal Notation, the numbers will be displayed with or without separator characters (such as 1000 or 1,000) depending on your user preference settings.

Tap the info icon in the upper right corner of the display for some general information about the calculator.

Tap on one or more digits to enter a starting number in the ENT field. Then tap a math operator (add, subtract, multiply or divide) button to select the operation you wish to perform. The operator button will be highlighted and your entry will move to the RES field. Then enter the digits for your second number into ENT field. When you have completed your number entry, tap the Equal button to perform the calculation. This performs a simple 2-number calculation.

To perform chained calculations, do not tap the Equal button. Instead, tap the highlighted operator button. You can then enter another number into the ENT field and repeat the same operation by tapping the highlighted operator button, or tap one of the other (non-highlighted) operator buttons to perform that operation

instead. Note that chained operations are performed in the sequence they are entered; that is, the new ENT number will be added to, subtracted from, multiplied by or divided into the currently accumulated value in the RES field.

When performing chained operations, tapping the Equal button will terminate the chaining operation, leaving the result of that sequence of operations in the RES field. You can clear the RES field before starting a new calculation by tapping the AC button, but it is not necessary. If you start a new single computation or another chained operation while the RES field contains a value from the previous computation, it will simply be ignored (as if you had cleared it with the AC button).

User Preferences

Several user preferences can be set via the Settings App as shown in the image on the right. These include:

Default Email Address

This entry will be automatically entered in the TO: field when you email kit information. By entering a value here, you can eliminate the need to repetitively type a frequently used email address.
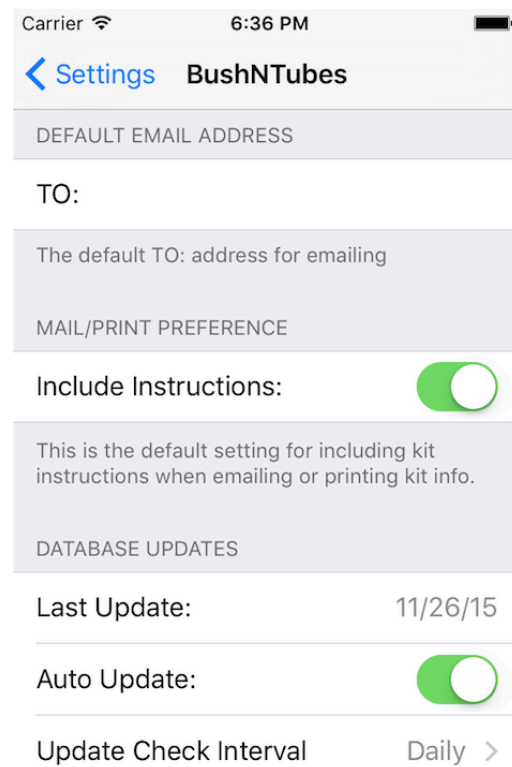
Default Instruction Mail/Print Mode

If assembly instructions or bushing drawings are available for a kit, you may include them when you mail or print kit information. This setting determines if the inclusion switch will initially be set to Yes or No when the Mail/Print page is presented. Note that this Yes/No selection applies to both instruction & bushing files together, not individually.

Auto Download Control

The app has the ability to download new Bushing & Tube chart data from the IAP server. You can disable this feature if you wish and you can select the frequency for the app to query the server if you do leave it enabled.

Note, if you disable the auto download feature, your database will only be updated when you install new versions of the app. Note also that the app will not be able to download instruction, photo or bushing files from the IAP server if you disable the auto download feature.

Number Formatting

Use this feature to select a preferred number-grouping format for the Calculator. Your choices are User Region Formatting, No Grouping, Comma Grouping and Space Grouping. This setting will apply to the Result and Memory fields of the Calculator. For example, a number could be displayed as 1234567 (with no grouping); 1,234,567 (with comma grouping); or 1 234 567 (with space grouping).
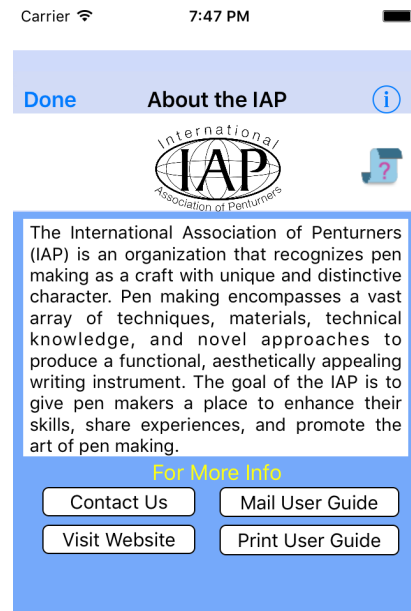
Auto Download Feature

If the Auto Download feature is enabled, the app will query the IAP ftp server at the specified time interval to determine if an updated database is available. If so, the app will download the new database in background mode and save it to the app scratchpad area.

Whenever the app is launched, it will check its scratchpad area to see if a new database is available. If so, it will update its internal database. This prevents the app from arbitrarily changing the database while the app is in use. The app also searches for new instruction, photo and bushing files whenever it checks for database updates. Any new files will be downloaded and added to those already in the app's data memory space.

IAP Information Screen

Tap on the IAP icon at the top of the main table view to switch to the IAP Information Screen. This screen displays the primary IAP mission statement, a link to the IAP web site and an email link for sending app feedback to the IAP. Tapping on the Visit Website button will exit the app and open the IAP web site in Safari.

The IAP Information Screen also has a button for viewing an app version of this User Guide as well as buttons for mailing or printing the guide.

Abbreviations Used in the App

Supplier Abbreviations

The app uses the following 4-character abbreviations for the suppliers whose data is included in the app:

```
AZSL   ➢   Arizona Silhouette
BHWD   ➢   Berea Hardwoods
BTWD   ➢   Bear Tooth Woods
CLNB   ➢   The Classic Nib
CSUS   ➢   Crafts Supplies USA
EXBL   ➢   Exotic Blanks
GPWS   ➢   Gary  Pye  Woodturning
           Supplies
```

```
HUTP    ➢   HUT Products
LLNZ    ➢   Lazerlinez
LRCR    ➢   Little River Crafts
LVLY    ➢   Lee Valley
PNST    ➢   Penn State Industries
PKWW    ➢   Packard Woodworks
RKLR    ➢   Rockler
SMPW    ➢   Smitty's Pen Works
WCFT    ➢   Woodcraft
WDWM    ➢   Wood N Whimsies
WDTZ    ➢   Woodturningz
WMWW    ➢   William Wood-Write
WWTX    ➢   Wood World of Texas
```

We hope you will enjoy using this app and find it useful for your penturning activities.

Please report any discrepancies or errors that you might find to the IAP Administrator.
admin@penturners.org.

We also welcome your comments and suggestions for improving this app.

Thanks, Edgar

Other Abbreviations

The following abbreviations are also used in the app:

```
BP  ➢   Ballpoint
FP  ➢   Fountain Pen
RB  ➢   Rollerball
IAP ➢   International Association of Penturners
```