

Virtual Tree Bucking

Help Document

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Overview

The **Virtual Tree Bucking**

application software provides a handy calculation utility that can help you determine an optimal way to segment a tree stem for best utilization. It assumes that the tree has been felled and de-limbed and that you are able to measure the diameters and length of the straight stem.

Before actually cutting up the tree, you can use the Virtual Tree Bucking utility to perform a few "**What if**" segmentation operations and view the yield of wood quantity and potential revenue for each scenario. For example, if the stem will fetch about the same amount of money when used mostly as Chip-n-Saw (CNS) rather than a segment of saw log and the remainder as pulpwood. This app will let you enter up to three products per stem.

As the tree volume units used varies with countries and regions, and the weight/volume conversion factors also vary with tree species, log grade, and even the segment location in the stem, this app provides a flexible platform to let you define a log **Merchandise Classes** database that best suits your own needs. The computed results will be as good as the conversion factors and pricing that you enter for each specific merchandise class.

The Virtual Tree Bucking utility does not tally the logs, but it provides the option to save the reported results to a

PDF file for later review.

We have also included in this app a number of useful mapping functions. Please note that the data entered within the Virtual Tree Bucking utility is unrelated to the Map Job data.

You will be able to digitize one or point **Point, Line and Area Features** and view point location, line length as well as the area and perimeter of an enclosed region.

You may digitize the points manually or by entering their geographic coordinates.

If your device has **GPS** capability, you could pick the GPS position to use as a node for the Point, Line or Area Feature that you are creating. The Features can be displayed over a **Map** when Wi-Fi is available and Location Service is turned on.

To help improve point location accuracy, this app provides a method for using a crosshairs symbol to pinpoint each node, thus taking the guesswork out of tapping the screen with your fingertip. It also provides a **Move Node** tool to let you fine-tune the position of an existing node.

This app also lets you measure distances on the displayed map. You will be able to tap around the boundary of a region and measure its area as well.

Besides the digitization and measurement functions, the app also provides the ability to locate a point of interest based on its address or geographic coordinates.

You will be able to save your job data and tree-stem segmentation data to a PDF file. In addition, you will be able to email your job files to yourself or a

colleage.

When you start this app, you will see a number of tool icons displayed across the top of the screen. Other tool icons may be displayed on various screens, depending on the function being used.



Main Menu (pull-down list)







Tap the Main Menu icon to display the list of functions on the Main Menu:

Job
Map
Setup
Help
About Virtual Tree Bucking



Digitizing Tools Menu (pull-down list)

Tap on the inverted arrowhead to show the following tools:

-  **Add Point manually**
-  **Add Line manually**
-  **Add Area manually**
-  **Add Point by Coordinates**
-  **Delete Feature**
-  **Move Node**



Utilities Menu (pull-down list)

Tap on the inverted arrowhead to show the following utilities:

 **Virtual Tree Bucking**

 **Measure Distance**

 **Measure Area**



Locate a point by address



Zoom-Fit



Feature Properties

On-screen Keyboard

An on-screen keyboard will automatically pop up when the focus is on a data entry field, such as the hinge-cut area. After entering data, tap the **Return** button on the pop-up keyboard. To hide the keyboard, tap on the keyboard button on the numeric keyboard, or tap in an area outside the keyboard.

When entering numeric data, you will notice that there is a Separator Key



on the numeric keyboard showing several symbols on it. To enter a stem or log length value with a fractional part, tap this key to put in the decimal point.

To enter angles in **DMS** (Degrees-Minutes-Seconds), if your data value will not fill in all the places, then tap the special key after entering the desired value. For example, to enter the longitude of 91°09'26.082"W, you could type in 0910926.082W. Or, you could type 91, tap the special key, type 9, tap the special key, then enter 26.082W.

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Open a Job File

Tap the **Main Menu** icon, select **Job** then select **Open**. Select an existing job file to open, such as **test.pmp**.

To create a new job file, enter a unique file name then tap the **OK** icon ✓. (Yes, it's okay to type over the displayed file name.)

If you are working with a job file and want to open another job file instead, use **Main Menu - Open - Job** to select the desired file name. This action will automatically close the previously opened file.

If you are not sure which job file you are working on, use **Main Menu - Open - Job** to view the File Dialog screen. The name in the **File Name** box is that for the currently open file.

To cancel out of the screen for opening a file, simply tap the **Cancel** icon .

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Save the Job File

To save the feature map job data in the currently open file, tap the **Main Menu**, select **Job** then select **Save**. The file extension will be ***.pmp**.

To save the job data under a different file name, tap the **Main Menu**, select **Job** then select **Save As**. Enter the new file name.

Let's save the **test.pmp** example file that you have just opened under a different name, such as "mytest". This way, you can work with **mytest.pmp** and keep the original test.pmp file intact for later use.

Whenever you open another job, the program automatically saves the data in the current job and closes the current job.

The *.pmp files will reside in the **Documents** folder for the application. To access your *.pmp files outside of the application, first sync your device with the iTunes® program. Select your device then scroll down to the **File Sharing** section. Click on the **Virtual Tree Bucking** app name. After a while, the data files associated with this

app will show up on the right-hand side.

To delete a .pmp job file, use the iTunes® program to access the Documents folder for the app as described above then select the file and hit the **Delete** button on your desk-top computer. **A deleted file cannot be recovered.**

Please note:

Before updating to a new version of **iOS**, first back up all you apps and data files. Also, should you decide to remove an application software for some reason, beware that all the associated data files will be deleted. If you wish to save the data files, please save a copy to your desk-top computer by using iTunes before removing the app.

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Set up Units and Angle System

Select the **Unit and Angle System** under the **Job** Menu to specify the desired length unit for displaying line segments. The areas will be computed in the metric or British system accordingly.

When the British system is used, log volumes may be displayed in Cubic Feet, Board Feet or Cords, and log weights will be displayed in Tons.

When the Metric system is used, log volumes will be displayed in Cubic Meters and log weights will be displayed in Metric Tons.


Available choices for displaying angles are **Azimuth** and **Bearing**. If Azimuth is chosen, also specify the **Angle System**: North or South. Angles will be displayed in Degrees, Minutes and Seconds (DMS).

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Display Map

Whenever you are connected to the Internet and your location can be determined, the default built-in Map for your device can be displayed as the background map for your job data.

You may select one of the following view modes after tapping the **Main**

Menu icon  then choosing **Map**:

Show Standard - Show a map of streets, landmarks, and bus stops.

Show Satellite - Show satellite photos.


Show Hybrid - Show street names on satellite photos.

To turn off the Map display, tap **Close Map** on the Map menu.

Where am I?

When you start a new job, the app does not know where you are. If you have the Map turned on, you can find your continent then zoom in to your country, your city, hence your neighborhood. You may zoom into or zoom out of portions of the graphical view by using your fingers to pull or pinch on the display, respectively.

If your device is equipped with GPS or has Location Service, then you can tap

the **Main Menu** icon  and select **GPS ON** to turn on GPS. When prompted, confirm to allow the app to use Location Service to find your location. This will permit the app to immediately zoom to your location. (Make sure the **Location Service** is turned on for the Virtual Tree Bucking application software under Settings on your device. With iOS6, Location Service setting is placed under Settings


- Privacy.)

To nail down your location, you will need to digitize at least one Point. In the following sections, we will show you how to digitize a couple points, a line and an area in the **mytest.pmp** job file. As the points in this job are located in Oregon, USA, you will want to **set GPS to OFF for now**. Otherwise, the app will always zoom to your current location, which most likely is very far away from the sample job location.


Go ahead and turn on **Map** in the **Show Satellite** mode.

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Add Point Manually

Let's add a couple new **Point Features** to **mytest.pmp**. To do so, first tap on the Digitizing Tools Menu then select **Add Point manually** from the pull-down list. If the Add Point Manually icon  is already displayed, then simply tap on that icon.


When the **Add** icon  is lit, whenever you tap on the screen, a point will be added.

Tap on  to toggle it off when you wish work in the standard touch-screen mode. For example, you may wish to zoom into a map to make it easier to place your node more accurately. When **Map** is turned on, you may not be able to zoom to a really small scale. If the background Map is not necessary, you could turn it off then reverse-pinch (pull) to zoom in further. To fit the drawing to the screen, simply tap the **Zoom-Fit** icon.


We will tap on  to toggle it off

then pinch the screen to zoom out somewhat to bring the tree to the right of the three points into view, as shown below.



Now we will tap on  to toggle it on then tap on the tree to digitize its approximate location. A **blue dot** will be displayed to represent the new Point Feature.



If your device has GPS capability, you could add a point right at the current GPS position. To do so, first tap the **Down Arrowhead** at the upper-right corner of the screen and select **GPS ON** to turn on GPS then tap the **Pick GPS** icon  to add the Point Feature. (Do this in another job file as we do not wish to add a very distant


point to the mytest.pmp file.)

If you made a mistake in digitizing a point, you may tap the **Undo** icon ↶ to back-step.

Caution: Use the **Undo** icon ↶ with discretion. It will remove the last created point regardless of whether that point was added in the current or a previous **Add Point Manually** session.

If you look carefully, you will notice that the right-most corner of the displayed triangular plot of land is actually clipped off and is not represented by a single apex. Your task is to add another point at the fourth corner of this land plot.

To accomplish the daunting task of placing a dot precisely at the desired location, tap on the donut-shaped



Node tool . A larger donut with crosshairs at its center will be displayed on the map. Touch on the purple area of this tool and drag the crosshairs to the fourth corner of the land plot.



Now tap once in the donut hole to drop the point. You could also keep holding down on the purple donut and use another finger to touch outside of the

dounut area to drop the point.



If you were to add a point on top of an existing point, or on one of the nodes of an existing Line or Area Feature, tap the **Down Arrowhead** at the upper-right corner of the screen and select **Snap to Node**  to display that icon. When  is lit, a point will only be created when you tap close to an existing point or node.

Tap the **Back** button to exit the Add Point Manually screen and return to the main screen.

When you tap on a Point Feature on the main screen, its Point ID and coordinate information will pop up briefly.


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Add Line Manually


A Line Feature is made up of a series of nodes. You can digitize a line by tapping at the location of these nodes on the screen. You could draw a smoother line by dragging on the screen. The app will drop the necessary number of nodes to represent the line.


Let's scroll down somewhat on the map displayed for **mytest.pmp** and try

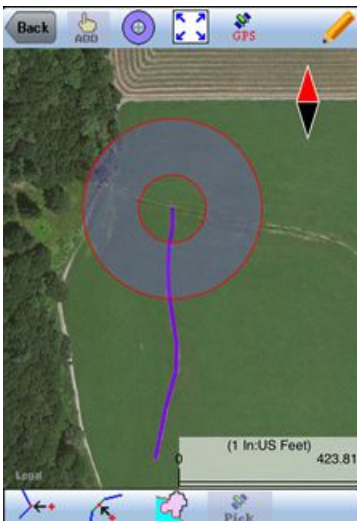
to digitize one of the paths in the lush green field.


To add a Line Feature, tap on the Digitizing Tools Menu then select **Add Line manually** from the displayed menu. If the Add Line Manually icon  is already displayed, then simply tap on that icon.


You may tap on the **Line Style** button to select a different line style and color for digitizing your Line Feature.


To see more of the screen for digitizing, tap on the **Edit** icon  to hide the lower part of the display.

You could do a line quickly by tapping on the path to drop a few nodes. Or, you could make a more faithful reproduction of the path by using the **Node tool**  described previously under Add Point Manually.



If you want the line to snap to an existing Point Feature or a node on an existing Line or Area Feature, then tap on the **Snap to Node** icon  on the lower half of the screen to turn it on. Then when you tap close to an existing node, your new line will snap to that node. If you wish to drop a node wherever you tap on the screen without snapping to a node, turn off


the **Snap to Node** icon  by tapping on it and making sure it is not lit.



Turn on  **Snap to Line** when you wish to snap your new line to an existing Line or Area Feature. Then when you tap close to that Line or Area Feature, your new line will snap to the nearest node on the existing Line or Area Feature.



Include Boundary is a powerful tool that lets you incorporate all or part of a line or an area boundary in the new Line Feature you are digitizing. After turning this tool on, first tap on the line or area of interest then tap on the starting and ending nodes of the section you wish to include in your new line. Tap on the **Finish** button to finalize this action. Then you may select another boundary line to include, or continue to tap on the screen to drop nodes for the new line.

Whenever you need to place a node precisely, tap on the donut-shaped **Crosshairs tool** then use the crosshairs to zero-in on the desired location.

Tap the **Add** icon  icon to turn it off if you need to zoom or pan the map.

If your device has GPS capability, you could tap the **GPS** icon  to turn on GPS then tap the **Pick GPS** icon  to add your current position as a node for the line.

To remove a node that you have just added, tap once on the **Undo** button.

If you wish to add another Line Feature, then tap the **Next Line** button. Otherwise, tap the **Back** button to exit this screen.


When you tap on a Line Feature on the

main screen, its Point ID and coordinate information will pop up briefly.

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Add Area Manually


To digitize an Area Feature, tap on the Digitizing Tools Menu then select **Add Area manually**. If the Add Area

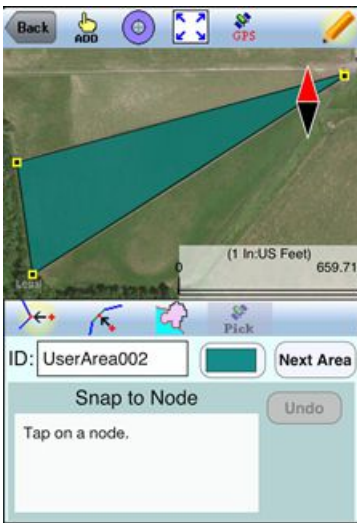
Manually icon  is already displayed, then simply tap on that icon.


You may tap on the **Area Pattern** button to select a different pattern and color for the Area Feature you digitize.


You can digitize an Area Feature by tapping along its boundary. For example, if you wish to make a triangular shape, you would tap on the screen at the three corners of the shape.

Let's create an Area Feature by joining the Point Features at the four corners of the nearly triangular land plot in **mytest.pmp**.

With the **Snap to Node** icon  turned on, tap close to each of the four Point Features in the clockwise or counterclockwise direction. You don't need to tap on the first point again. Tap the **Next Area** button to close the area you have just formed.





Tap the **Add** icon  to turn it off if you need to zoom or pan the map, such as when trying to tap on the two closely spaced points in mytest.pmp.


To see more of the screen for digitizing, tap on the **Edit** icon  to hide the lower part of the display.

Tap the **Undo** button to back-step and remove the last added node, if necessary.

If you want the line to snap to an existing Point Feature or a node on an existing Line or Area Feature, then tap


on the **Snap to Node** icon  to turn it on. Then when you tap close to an existing node, your new line will snap to that node. If you wish to drop a node wherever you tap on the screen without snapping to a node, turn off



the **Snap to Node** icon  by tapping on it and making sure it is not lit.



Turn on  **Snap to Line** when you wish to snap the boundary of your new area to an existing Line or Area Feature. Then when you tap close to that Line or Area Feature, the boundary of your new area will snap to the nearest node on the existing Line or Area Feature.

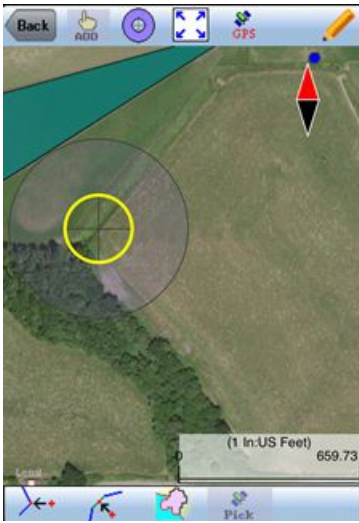


Include Boundary is a powerful tool that lets you incorporate all or part of a line or an area boundary in the new Area Feature you are digitizing. After turning this tool on, tap on the line or area that you wish to make use of. Then tap on the starting and ending nodes of the section you wish to include in your new area. Tap on the **Finish** button to finalize this action. Then you may select another boundary line to include, or continue to tap on the screen to drop nodes for the new

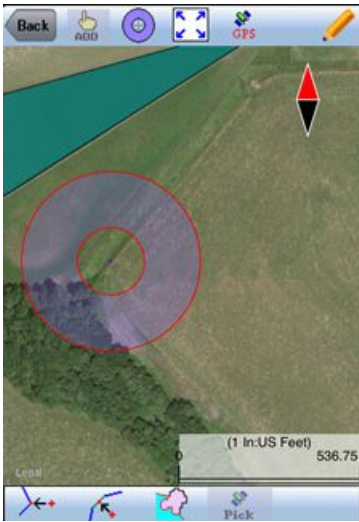
area. You can use the **Node tool**  in conjunction with the Include Boundary function. In this case, move the Crosshairs to the line or area of interest then tap in the donut hole to select that Feature. The remaining steps are the same.

If your device has GPS capability, you could tap the **GPS** icon  to turn on GPS then tap the **Pick GPS** icon  to add your current position as a node for the area.

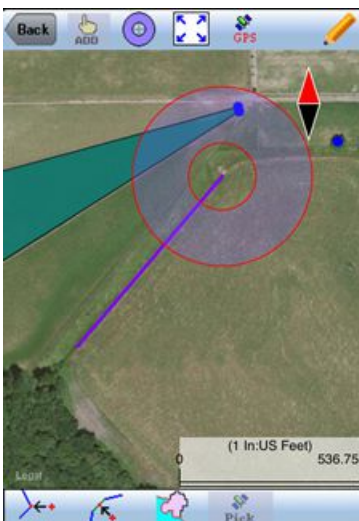
As another exercise, tap the **Add** icon  icon to turn it off then pan to the right to find the tree that we digitized before under Add Point Manually. Try digitizing the larger land plot to the south of that tree. Whenever you need to place a node precisely, tap on the **Node tool**  then use the crosshairs to zero-in on the desired location.



Tap in the center of the donut to drop the node.

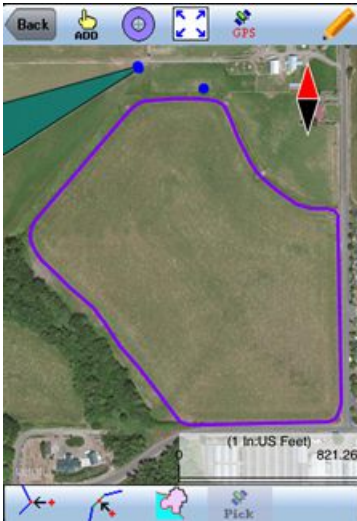


Repeat the process to drop the second node.



Drop additional nodes around the

boundary of the area to complete the Area Feature.




If you wish to add another Area Feature, then tap the **Next Area** button. Otherwise, tap the **Back** button to exit this screen.

When you tap on an Area Feature on the main screen, its Point ID, location and area information will pop up briefly. You can view this information as well as the perimeter of the selected Area Feature by using the Feature Properties tool discussed later in this document.

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Add Point by Coordinates

If you know the geographic coordinates of a point, you can add the point to the map by entering its coordinates after tapping on the Digitizing Tools Menu then selecting **Add Point by Coordinates**. If the Add

Point by Coordinates icon  is already displayed then simply tap on that icon to display the data input screen.

You may tap on the **Pattern** button to select a different symbol and color for the Point Feature to be created.

Make sure you specify the correct


North or South Latitude, and the correct East or West Longitude.

The Orthometric height is the elevation based on mean-sea-level. The ellipsoidal height is based on the ellipsoid.

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Delete Feature

To delete any Feature displayed in the main Map View, first tap on the Feature to highlight it. Then select **Delete Feature** from the Digitizing Tools Menu. Confirm to delete the selected Feature only if you really want to have it deleted.

When you see the Delete Feature icon  displayed as the currently active function, you may select a Feature then tap on this icon to delete that Feature. Confirm to delete the Feature only if you really intend to so do.


Once a Feature has been deleted, it cannot be recovered.

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Move Node

The **Move Node** tool on the Digitizing Tool Menu will let you adjust the position of an existing Point Feature or a node on a Line or Area Feature.

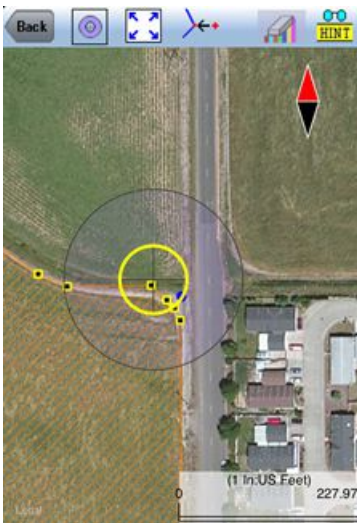
Let's open the **lakecreek.pmp** sample job. A perfectionist looking at the corner near the dot by the road would wish to move a couple nodes on the Area Feature to improve the alignment with the boundary of the actual land plot.

To move a Feature, first tap on it to select it. Then tap on the Digitizing Tool Menu and select **Move Node**. If the Move Node icon  is already

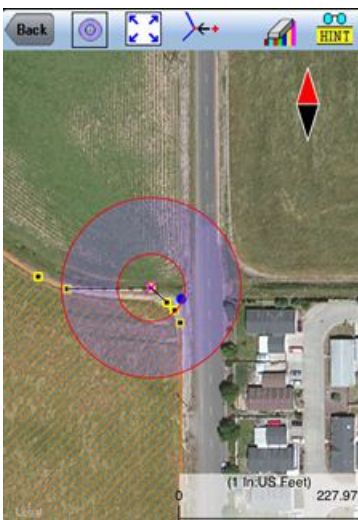
displayed, then simply tap on that icon to get to the Move Node screen.

If you've tapped on the wrong location, you may tap the **Reset tool** icon  to reset the selection then select the correct location.

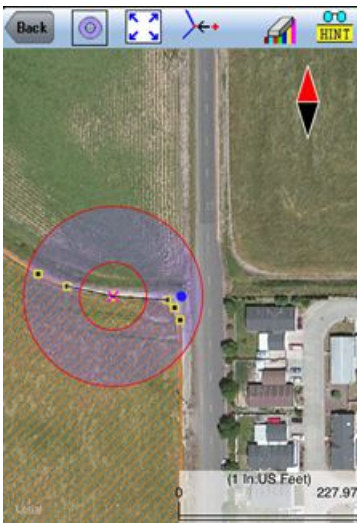
Assume you have selected the Area Feature shown below, and you have activated the Move Node tool and zoomed in and panned to the corner of interest. Drag the **Crosshairs** to the node you wish to move.




Tap once in the center of the donut to mark the node to be moved.





Then drag the **Crosshairs** to the new position and tap once in the center of the donut to affix the node there.



After adjusting the next node to the right in a similar way, the shape will be in good agreement with the land plot.

When you wish to snap to an existing Point or node by tapping in its vicinity, remember to first tap on the **Snap to Node** icon  to turn it on


If the Crosshairs have moved off the screen, you could tap on the  icon to bring the Crosshairs back to the center of the screen.

You may turn off the instruction text by tapping the **View Hint** icon  **HINT**. This will free up more screen space for displaying the job data, especially when you are using your device in landscape mode.

Tap the **Back** button to exit this screen.

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Feature Properties

To view the properties of a Point, Line or Area Feature, first tap that item on the map screen then tap on .

The Feature Properties screen will show the coordinates of the selected **Point Feature**, the coordinates of the selected **Line Feature**, or the perimeter and area of the selected **Area Feature**.

You may change the symbol for the selected digitized Point, the line style for the selected Line Feature, or the area pattern for the selected Area Feature by tapping the **Pattern** button in the Feature Properties screen. Select the desired symbol or pattern from the built-in symbols library and select the desired color and size. For the Area Feature, you may also adjust its level of **Transparency**.

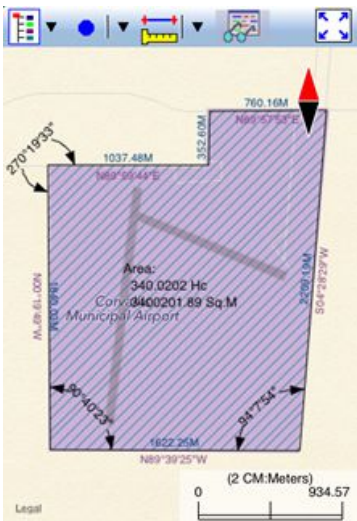
For Line and Area Features, you may specify the type of labels to display on those Features when feasible. Tap on the **Labels Setup** tab then mark the checkbox for the labels you wish to see:

Show Corner label

Show Segment label

Show Area label (for Area Features only)

Following is an example showing all the labels turned on for an Area Feature. Please note that if an angle is smaller than 90 degree (acute angle), it will be labeled on the opposite side. Also, some labels will not be displayed when you have zoomed out too much or if there is not enough space to display the labels.




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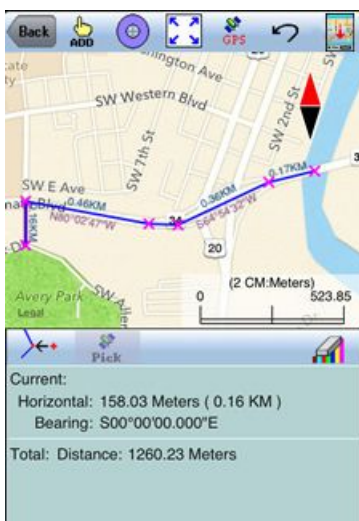
Measure Distance


If you would like to know the distance between two or more map locations, first tap on the **Measure Distance** icon





on the **Measurement Tools** pull-down menu. Then tap on the map locations to have the distance calculated. The total distance as well as the length and direction of the last segment added will be displayed.


Whenever you need to place a node precisely, tap on the **Node tool**  then use the crosshairs to zero-in on the desired location.





If your device has GPS capability, you could tap the **GPS** icon  to turn on

GPS then tap the **Pick GPS** icon  to add a node for the line to be measured.

Tap on the **Snap to Node** icon  to turn it on when you wish to snap to an existing Point or node by tapping in its vicinity.

To see more of the screen for delineating the line to be measured, tap on the **Full-screen View** toggle  to hide the measurement values.


To back-step, tap the **Undo** icon . To delete all the nodes made in this measurement session, tap the **Reset** icon .

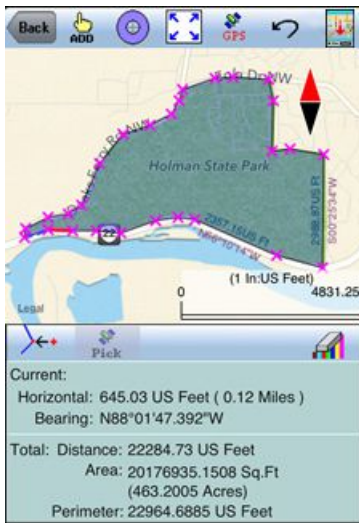
Please note that the Measure Distance tool will not retain the **temporary** shape you have delineated for computing the distance.


When you no longer need the displayed information, tap the **Back** button to close this screen and discard the temporary shape.



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
Measure Area


The **Measure Area** tool  on the **Measurement Tools** pull-down menu will compute the area enclosed within a boundary that you form by tapping on the map.





Whenever you need to place a node precisely, tap on the **Node tool**  then use the crosshairs to zero-in on the desired location.

If your device has GPS capability, you could tap the **GPS icon**  to turn on GPS then tap the **Pick GPS icon**  to add a node for the area to be measured.

Tap on the **Snap to Node icon**  to turn it on when you wish to snap to an existing Point or node by tapping in its vicinity.

To see more of the screen for delineating the area to be measured, tap on the **Full-screen View toggle**  to hide the measurement values.

To back-step, tap the **Undo icon** . To delete all the nodes made in this measurement session, tap the **Reset icon** .

Please note that the Measure Area tool will not retain the **temporary** shape you have delineated for computing the area.

When you no longer need the displayed information, tap the **Back** button to close this screen and discard

the temporary shape.

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Locate a Point by Address


To look for a location by address or coordinates, tap on the **Measurement and Location Tools Menu** then select **Locate a Point by Address**. This function will only work when **Map** is turned on.

If you know the address of the location of interest, tap the **By Address** tab then enter the address.


If you know the coordinates of the location of interest, tap the **By Coordinate** tab then enter the coordinates. Make sure you have entered the correct N/S and E/W designations.

After tapping the **Go** button, you will see the target location marked on the screen. You may search additional locations by address or by coordinates. All the locations you searched for will stay marked before you exit this screen.

If you can recognize the desired location on the displayed Map, you could select that location by tapping the **Pick** icon  then tapping on the target location. The relevant address information will pop up on the screen, and when you tap the **Go** button, that location will be marked. You can view its coordinates by tapping the **By Coordinate** tab.

When you tap on a marked location, the corresponding marker will turn orange. If you wish, you may save that location as a Point Feature by tapping on the **Save Point** icon . You may change the Feature ID and the symbol used to represent the new point before tapping on **OK** to create the Point

Feature.

To hide the data entry panel and see more of the map, tap the **Edit** icon  to turn it off. To turn on the data entry panel, simply tap on this icon again.

When you no longer need the displayed information, tap the **Back** button to close this screen.

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Export to a PDF File

To export the map job data to a PDF file, tap the **Main Menu** icon then select **Export to PDF**.

The contents of the PDF file will be displayed. The first page will show the drawing of the Features as they are displayed on the screen. If you wish to have all Features included in the drawing then first fit them all on the screen by tapping the Zoom-Fit icon



The additional page(s) will show the boundary coordinates and areas of the Area Features as well as the coordinates of the Point Features or the starting and ending nodes of the Line Features.

The exported PDF files will reside in the Documents folder for the application. To access the PDF files exported from the application, first connect to the iTunes® program then look in the Documents folder for the **Virtual Tree Bucking** app.

To delete a PDF file, use the iTunes® program to access the Documents folder for the app then select the file and hit the **Delete** button on your desk-top computer. **A deleted file cannot be**

recovered.

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Email the Files

You may email one or more PDF files (*.pdf) or Job files (*.pmp) by tapping the **Main Menu** icon then selecting **Email Files**.



To output a file to email, first enter the destination email address, select the file type, mark the checkboxes for the files you wish to send, then tap the **Send** button.

When the email is displayed with the attachment, tap the **Send** button at the top to send the email, or tap **Cancel** to cancel the action.

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Define Merchandise Classes

When you tap on the Virtual Tree


Utility icon , you will see the Virtual Tree screen displayed. Before you can enter stem data and segmentation data, you will need to first set up the tree species, tree products and wood merchandises. To do so, tap on the **Merchandise Setup** icon .


Add Species

To add a tree species, first tap the **Add** button then enter the name of the species. Tap the **Next** button then tap on **Add** again to add another species name.


The fast way is to tap on the Pick icon  **Pick** then mark the species you will be working with then tap the green checkmark  at the top.

At the upper-left corner of the table is

an icon that lets you toggle between the View and Edit modes. When the **View** icon  is active, you can move from one cell to another without invoking the on-screen keyboard.



When the **Edit** icon  is active, the keyboard will automatically pop up whenever you tap on a cell, so that you may easily edit the contents of that cell.


If you will be working in different regions in which the same tree species may have different characteristics, you could edit the species name by adding a code to identify the different regions.


When done adding the species names, tap the green checkmark  to return to the Merchandise Classes screen.


Add Products

To add a wood product, first tap the **Add** button then enter the name of the product. Tap the **Next** button then tap on **Add** again to add another product name. Each log grade or size group should be set up as a unique Product.

The fast way is to tap on the Pick icon  then mark the products you will be working with then tap the green checkmark  at the top.

At the upper-left corner of the table is an icon that lets you toggle between the View and Edit modes. When the **View** icon  is active, you can move from one cell to another without invoking the on-screen keyboard.

When the **Edit** icon  is active, the keyboard will automatically pop up whenever you tap on a cell, so that you may easily edit the contents of that cell.

When done adding the product names, tap the green checkmark  to return

to the Merchandise Classes screen.

Add Merchandise Classes

Now that you have defined a few species and the associated products, you are ready to define the merchandise classes. Each merchandise record consists of the tree species, the product name as well as the merchandise pricing and conversion factors.

As this app can work with **British** and **Metric** units, please make sure you have selected the correct units under **Set up Units and Angle System**. Select the distance/length unit that you will be working with.

If you select **US Feet**, then the tree quantities will be expressed in one of the following units:

CuFt - Cubic Feet

CCF - Cunit, Hundred Cubic Feet

BF - Board Feet

MBF - Thousand Board Feet

Cord - Standard Cord or Solid Cord per the conversion factor you specify

Ton - 2000 lbs.

If you select **Meters**, then the tree quantities will be expressed in one of the following units:

CuM - Cubic Meter

MTon - Metric Ton

If you select a cubic volume (e.g. CuFt or CuM), the log volume will be computed based on the Smalian formula.

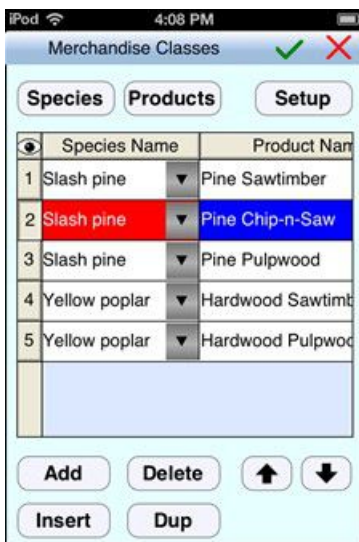
If you select Board Feet (BF) as the volume unit, the log volume will be

computed per the Log Rule that you specify (Doyle, Scribner C, International 1/4 or International 1/8).

The tonnage or cordage of the wood will be computed based on the conversion factors that you specify.

To define a merchandise class, first tap the **Add** button to add a new record.

Tap the little **pull-down** arrow for the **Species Name** field and select a Species. Similarly, Tap the little pull-down arrow for the **Product Name** and select a log product.



We have included in this app a few merchandise classes as examples. If you happen to work with the listed merchandises, then you may select one of them and modify the conversion factors as necessary.

Scroll to the right to see the Setup buttons.

Tap the **Setup** button to call up the **Merchandise Setup** screen for the highlighted merchandise.

The screenshot shows the 'Merchandise Setup' interface on an iPod. At the top, it displays 'iPod', signal strength, '3:54 PM', and battery level. The title bar reads 'Merchandise Setup' with a green checkmark and a red X icon. The main content area is light blue and contains the following fields and controls:

- Species: Slash pine
- Product: Pine Sawtimber
- Segment Type: A row of four buttons: 'All' (highlighted in red), 'Bottom', 'Center', and 'Top'.
- Volume Unit: A row of three buttons: 'Cubic Unit', 'Cord', and 'BF' (highlighted in red).
- Log Rule: A dropdown menu showing 'Doyle'.
- Value (\$/MBF): A text input field containing '285.00'.
- Ratio (Ton/MBF): A text input field containing '7.5000'.
- Value (\$/Ton): A text input field containing '38.00'.

As you can see, you can define the conversion factors and merchandise pricing for each **Segment Type** (All, Bottom, Center, Top). These values will be applied to the logs in the corresponding positions in the stem.

If you wish to disregard the differences (such as in density) between the different segments of the stem, then just define the parameters for the "All" Segment Type and leave the data fields for the other segment types other blank.


If you are using the British system, there are a few options for volume units. If a stem will be cut into a sawlog segment, a CNS segment and a pulpwood segment, you may wish to see the sawlog volume in board feet (BF), and the CNS and pulpwood in cords. Or, you may wish to see the weight for all of the segments in the tree. And you will want to compare the potential profit from selling the wood product in \$/MBF or in \$/Ton.

The **Merchandise Classes** screen provides a faster way for adding a merchandise that shares the same pricing and conversion factors as an existing merchandise. First highlight the existing merchandise, then tap the **DUP** button. A new merchandise will be added that has the same name and characteristics as the existing

merchandise. Now select the proper Species Name and Product Name for the newly added merchandise. You may edit the conversion factors as necessary.


You may use the **Ins** button to add a new merchandise before the currently highlighted merchandise. Tapping the **Del** button will delete the currently highlighted merchandise after your confirmation. Please note that when you delete a merchandise name, all the conversion factors you have entered for that merchandise will also be deleted.

The Merchandise Setup data is stored in a file named **bucking.cfg**. It is a good idea to use iTunes to transfer a copy of this file to your desk top computer and rename it with a different file name for safekeeping. Should you mess up the merchandise setup from your device for some reason, you could rename the saved file to bucking.cfg then transfer it to the app's Document folder after restarting the app. To restart the app, first click once on the Home button of your device. Then double-click the Home button. The icons for the running apps are displayed **at the bottom of the screen**. Hold down the icon for the Virtual Tree Bucking icon until a "-" symbol appears. Tap on that symbol to remove the app icon. Double-click the Home button to return to the Home screen.

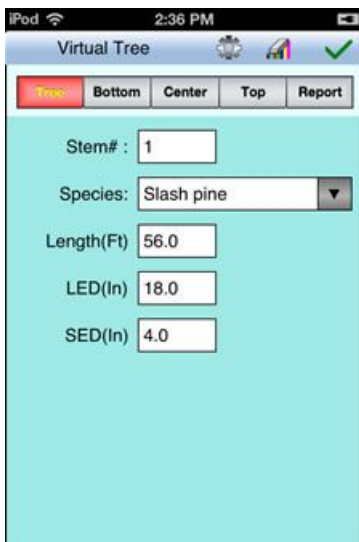
When done adding the merchandise classes, tap the green checkmark  to return to the Virtual Tree screen.

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Enter Tree Stem Data

To enter the tree-stem data, first tap on the Virtual Tree Utility icon  to show the Virtual Tree screen. If you have not yet set up the tree species,

tree products and merchandises, please follow the instructions under [Define Merchandise Classes](#) to do so.




The **Stem#** field is optional. The Virtual Tree screen will retain the data for one stem only. However, you can output the data to a PDF file. If you do, then entering a Stem# can help you keep track of the stems in the report file.

Select the tree species from the drop-down list for Species.

Enter the total Length, the large-end diameter (**LED**) and the small-end diameter (**SED**) of the entire stem.

Measure the diameters inside bark. For each end of the stem, enter the average diameter.

If you wish to clear all the data you have entered for the stem you are working on, tap the **Reset** icon .

Caution:

Once you confirm to delete the data, all the data for the tree stem as well as the data for all the tree segments will be gone.

Normally you would be using the **Reset** function only when you are

about to work with a different stem and want to clear out the old data. Afterwards, you could enter the next Stem#, if you wish.

If you switch to a different distance unit (such as from feet to meters), it is best to re-enter the stem data as well as the segment in the new unit system as the converted values will be rounded and not be exactly what you want.

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Segment the Virtual Tree Stem

To enter the data for the bottom-most log segment, first tap on the **Bottom** tab.



The screenshot shows the 'Virtual Tree' app interface on an iPod. The top navigation bar includes 'Tree', 'Bottom' (highlighted in red), 'Center', 'Top', and 'Report'. Below the navigation bar, the 'Product' is set to 'Pine Sawtimber'. A 'Merchandise Class' button is visible. The 'Length(Ft)' field is set to 16.0. The 'LED(In)' field is set to 18.0 and the 'SED(In)' field is set to 14.0. The 'Unit' is set to 'BF' (Board Feet), with 'Volume' and 'Weight' options also visible. The '\$/MBF' field is set to 285.00. At the bottom, a yellow box displays 'Volume: 100.00 BF' and 'Price(\$): 28.5'.

Select the product for the bottom segment then enter the length of the virtual log segment.

Initially, the app will automatically fill in the fields for the Bottom Segment as if the entire stem were to be this one single product.

The app will automatically enter the large end diameter (**LED**) and the small-end diameter (**SED**). You may change these values. For example, if you are culling a 2 ft section at the bottom end, you will enter a LED value that is smaller than the LED of the stem. The app will automatically

recalculate the SED.

Tap on the **Volume** button to highlight it in red color. Then select the volume unit from the drop-down list.

If you wish to have the weight of wood reported for this log segment then tap on the **Weight** button to highlight it in red color.

The app will display the pricing and weight/volume conversion factor to be used. These values are obtained from the Merchandise Setup. You can change them, if you wish.

It will also display the wood quantity and value for the log segment.

If the required conversion factor or price information cannot be found from the Merchandise Setup, then you will see an error message instead. In that case, you may tap on the **Merchandise Class** button to go to the corresponding screen that will let you supply the needed information. If you just wish to define the conversion factors that will apply to all log segments regardless of their positions in the stem, then tap the **All** button to access the corresponding data entry fields. The app will use the data on the **All** page if it cannot find the values for a particular log segment position.

If there are three log segment in the stem, then tap on the **Center** tab or the **Top** tab to enter the data for the **Center** and **Top** segments, respectively.

"N/A" means not applicable, or not available. If this tree will have just one bottom segment, then you will leave the Center and Top segments as "N/A".

In fact, you may "skip" any log segment position as appropriate. For example, suppose the entire stem will

be used as pulpwood and the conversion factors and pricing defined for the Top Segment should be applied to this log, then you would enter this log segment as the Top Segment and leave the other segments as "N/A". (If you have only defined conversion factors and pricing for "All" in the Merchandise Setup, then it does not matter where you position this log segment.)

If there are two log segments in the stem, then enter data for the appropriate log segment positions, and select "N/A" for the remaining segment position. If you have defined different conversion factors for the Bottom, Center and Top segments, those will be applied to the corresponding log segments.

If there are three log segment in the stem, then enter the data for the **Center** and **Top** segments in the same way as described above for the bottom segment.

If you change the diameter at the boundary of two log segments (one of which could be a culled segment), the app will try to adjust the segment lengths accordingly. If you change the length of a log segment, the app will automatically recompute the log segment above it.

Error Checking

Any time the sum of the lengths of all the segments, including culled segments, exceeds the total stem length, the app will issue an error message. For example, if the stem length is 56 ft and its LED is 18" and you enter 17" as the Bottom log LED, then it's understood that you are culling a 4 ft section at the bottom. Therefore, the total length of the log products that you enter may not exceed $56 - 4 = 52$ ft. Similarly, if you enter a length for a "N/A" segment, that

segment will be understood to be culled and it will figure in the total length computation.

The app will issue a warning if the SED of any log segment falls below the SED of the stem.


Also, the app will complain when you enter a larger LED for a segment than the SED of the segment below it.

When entering data please pay attention to both the log lengths and the diameter values.

Whenever you want the app to recompute the value in a field for you, you can enter "-1" (**minus 1**) into the field.

When you want to try a different way of segmenting the tree, you would select a different product for a segment, or change the log lengths.

If you wish, you could also clear all the entered data and start anew. In that case, you can make use of the **Reset**

icon  after you have saved the report to a PDF file.

Caution:

Once you confirm to delete the data, all the data for the tree stem as well as the data for all the tree segments will be gone.

If you switch to a different distance unit (such as from feet to meters), it is best to Tap the **Reset** icon then re-enter the tree segmentation data in the new unit system. Otherwise, rounding of the converted values may cause the data to fail the error-checks.

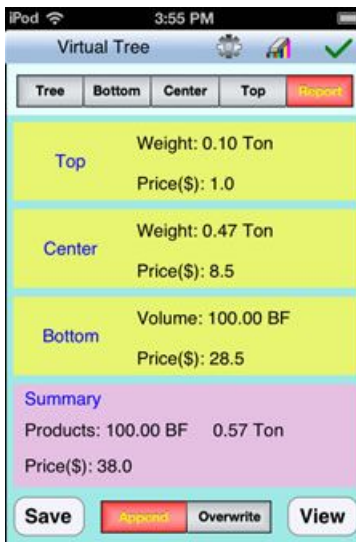
Also, if you change the stem data, it's best to re-enter the segmentation data as all the lengths and diameters will need to be recomputed.

The Virtual Tree screen will retain in the **bucketing.cfg** file the data for one stem only. However, you can output the data to a PDF file by using the **Save** button on the **Report** page.

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Report Quantities and Values

To display the page of reported log quantities and \$ values for all the log segments in the stem, tap on the **Report** tab.



If your merchandises have been properly set up, you will see the price and the volume or weight listed for each log segment in the stem. If any piece of required information is missing, the app will display an error message.

The Summary section displays the total wood quantities and the total worth of the stem.

If you wish, you could tap the **Reset** icon  to erase all the values then try a different way of cutting up the stem.

Please note that the app will not save the data that you have entered in the Virtual Tree Bucketing utility.

However, you can have the data output

to a PDF file as described below.

Save and View PDF Report

Use the **Save** button to save the tree stem and log segment data as well as the quantity and value report to a **PDF** file.

There are two different mode options. When the **Append** mode is active, i.e. highlighted in red, the currently displayed data will be added to the existing data in the PDF file.

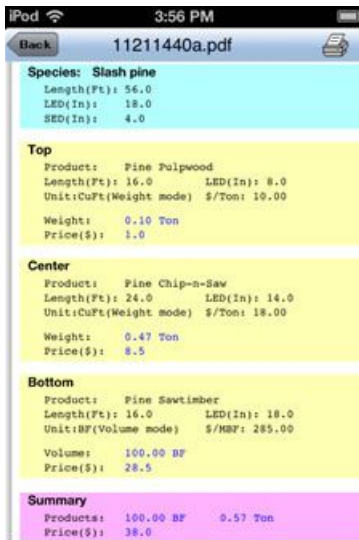
On the other hand, when the **Overwrite** mode is active and highlighted in red, the currently displayed data will replace any data that already exist in the selected PDF file. **Make sure you really do not need the old data in the PDF file anymore before selecting the Overwrite mode.**

If you wish to keep a record of all the different ways of segmenting the virtual tree stems that you have tried, then make sure the **Append** mode is active before saving the data to PDF. If you have specified a Stem# while entering the stem data for each stem, the saved PDF file will be much more informative to you.

When you tap on the **Save** button, the name of the last accessed PDF report file will be displayed. If you wish to save the data to the displayed file, simply confirm by tapping on the green checkmark ✓. If you wish to save the data to a different file, then select that file name or create a new file by tapping on the **New** button. Give the new file a name that makes sense to you then tapping on ✓.

The Report page also provides a **View** button that lets you view and print the contents of a PDF file at any time. In fact, if you have any reference document in PDF format (such as log

weight/volume conversion charts for various tree species and sizes), you could use iTunes to transfer a copy of the PDF file to your device. Then you could call it up within the Virtual Tree Bucking app.



To close the Virtual Tree Bucking utility, tap on the green check mark ✓.

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