



TCruise Template Setup and Editing

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Step #1 – Tract Information

The screenshot shows a dialog box titled "Tract Information" with a close button (X) in the top right corner. The dialog contains several input fields: "Land area" with the value "1", "Date" with the value "3/18/2005", "Name" with the value "1:11:11 AM", "Cruiser..." with the value "JMT" (circled in red), "Location", "Owner...", and "OtherInfo". There are "OK" and "Cancel" buttons at the top right. A clock icon is visible on the right side of the dialog. At the bottom, there is a button labeled "Enter user defined tract data".

Select *Templates>Tract Information* (or the Tract Info shortcut button) and then input any information, like Cruiser, that will pertain to each tract. The rest of the fields will be filled when you work up your cruise later.



Step #2 – Active Cruise Parameters

Select *Templates>Active Cruise Parameters* (or the Params shortcut button) and enter the following information:

Timber Cruise Method:

Plot, Point, Dbl Point, Stump Cruise

Default Species Code:

This is the code that will appear by default in your T-CruiseCE data input screen. If you are not sure what to enter, leave it at 1 and come back later.

Default Tree Product:

Set at AutoAssign – product assigned based upon DBH range – also can choose four other product size categories

Plot Size/BAF: This is in acres (i.e. $1/10^{\text{th}} = 0.1$, $1/20^{\text{th}} = 0.05$ acre) or BAF expansion for point cruises

Confidence %: Set the confidence level desired for in-field and office stats

Dbh measurement precision: Set at 0.1 inch, 1 inch or 2 inches

Pulpwood plot size, and activation: May choose to activate with check mark, and choose appropriate plot type and size.

Form class calculation assumption: Choose I.B for Form Class cruises or O.B. for Profile Function cruises.

NOTE: Other parameters on this page will be discussed under Specialty Cruises.

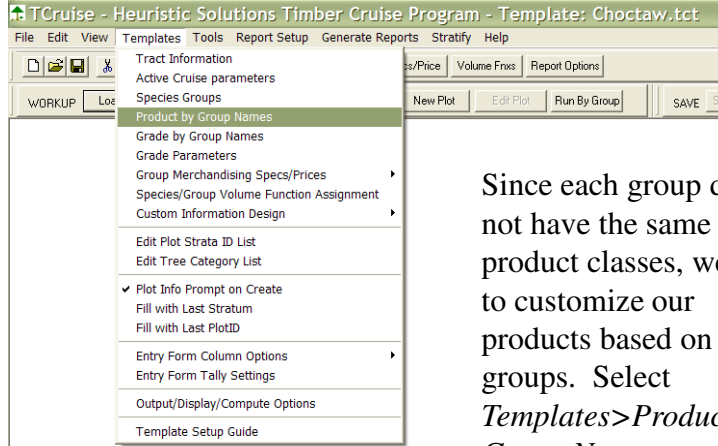
Step #3 – Species Groups

Group name
1 Loblolly
2 Shortleaf
3 Red Oak
4 White Oak
5 Sweetgum
6 Poplar
7 Hickory
8 Misc. Hardwood
9 Misc. Pine
10 Group 10
11 Group 11
12 Group 12
13 Group 13
14 Group 14
15 Group 15
16 Group 16
17 Group 17
18 Group 18
19 Group 19
20 Group 20
21 Group 21
22 Group 22
23 Group 23
24 Group 24
25 Group 25

Next, to define the Species Groups, select *Templates>Species Groups* and then type in the species groups that you will report volumes on later.



Step #4 - Products by Group Names



Since each group does not have the same product classes, we need to customize our products based on the groups. Select *Templates>Product by Group Name*.

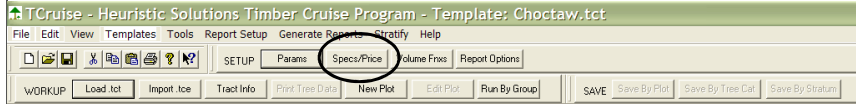
Products by Group Names

You will always have Default group codes in row 1. These will show up as the products in every Species Group where you do not enter something else. Note that you basically have **4 sets of 2 columns**. The first column in each set is the Product name, while the second is the abbreviation that will appear on the handheld. In our Loblolly group we left the first product as the default (Pulpwood) but changed the Small ST name to **Chipnsaw**. We also changed the default code from SM to **CNS**. Do this for each group as outlined below. When finished press OK.

Product names and codes by group name									
	Group name	Rw/pw name	Rw code	Sm st name	Sm st code	Md st name	Md st code	Lq st name	Lq st code
1	Default	Pulpwood	PW	Small	SM	Medium	MED	Sawtimber	ST
2	Loblolly			Chipnsaw	CNS				
3	Shortleaf			Chipnsaw	CNS				
4	Red Oak								
5	White Oak								
6	Sweetgum								
7	Poplar								
8	Hickory								
9	Misc. Hardwood			Palletwood	PAL	Crosstie	TIE		
10	Misc. Pine			Chipnsaw	CNS				
11	Group 10								
12	Group 11								
13	Group 12								
14	Group 13								
15	Group 14								



Step #5 - Group Specifications



Now that our products are defined we can enter the product specifications for each group by selecting *Templates>Group Merchandizing Specifications/Prices>Set a Groups Merchandizing Specifications/Prices.*

Or you can select the **Specs/Price** shortcut button.

Group Specifications

Next enter the Group Merchandizing specifications for the Loblolly Group by selecting Group 1 specs.

Notice that for the Loblolly group the Product names have changed to what we assigned them earlier. Our Alpha Codes have also changed to what we specified. You are now ready to input the cruising specifications for each product.

You can select which products you want to use **here**.



Group Specifications

[Templates Menu](#)

SPECIFICATION:	PRODUCT					OK
	Pulpwood	Small	Medium	Sawtimber	Cull	Cancel
Number code	1	2	3	4	5	
Alpha code	PW	SM	MED	ST	CL	
Compute volumes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Threshold dbh.	4.6	7.6	8.6	15.6	NA	
Pulpwood top(ob)	3	3	3	3	NA	
Sawlog top(ob)	3	5	6	8	NA	7/3/2007
Max end dia(ob)	25	30	30	35	NA	Default FC
Log/bolt length.	5.25	16	16	16	NA	<input type="checkbox"/> Solid PW
Stump ht.	0.5	0.5	0.5	0.5	NA	The Default FC and Solid PW fields are obsolete.
Wt/cubic vol (ob)	58.5	58.5	58.5	58.5	NA	
Weight/cord	5450	5450	5450	5450	NA	
Girard form class	88	88	88	88	NA	
Min useable hm	0	0	0	0	NA	
Max merch len	9999	9999	9999	9999	NA	
Min merch len	0	0	0	0	NA	
Multiple factor	None	None	None	None	NA	
SL prod redirector	PW	SW	SW	SW	NA	
Wt/cubic in IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NA	
Height record top diameter (must be <= to pulpwood Min top diam. (ob))	3					<<<<
<input type="checkbox"/> Sawlog product group height are all usable sawlog heights for all species assigned to this group for all profiles.						
<input type="checkbox"/> Pulpwood product group height are all usable pulpwood heights for all species assigned to this group for all profiles.						
Other non-product specific settings:						
PW in tops weight/cubicvol.	58.5	Pulpwood in tops wt/cord		5450	Stump ht	0.5 Obsolete
Default pulpwood in tops computation options OVERRIDE for group						
<input type="checkbox"/> Enable override of default compute options						
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed).			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for graded trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for graded trees. The stopper top must be set the Sawlog Top (SW).			
Minimum top pulpwood piece length	0					

SPECIFICATION: Product names. This can be changed for each group in the *Define--Product by Group Names* menu option. This will be covered later in this manual.

Number Code: This number is associated with each product class 1-4. These numbers are not user assignable.

Alpha code: Code assigned to each product which can be 3 characters long.

Compute Volumes: Enables/Disables TCruise to calculate volumes for the associated product class.

Threshold DBH: The minimum DBH for each product category. TCruise will auto assign the products based on this number. The dbhs entered must be in ascending order of magnitude: from pulpwood to sawlog or the program will not let you continue.

Pulpwood top(ob): The minimum diameter to which pulpwood volume will be calculated for each product class.

Sawlog top(ob): The minimum diameter to which sawtimber volume will be calculated for each product class, except product class #1 (PW). Used with profile functions only.

Max end dia(ob): The maximum butt diameter for each product category. Volume will not be calculated for diameters larger than value input.

Log/bolt length: Length to which TCruise will look to merchandise log lengths to calculate board foot volumes. This only affects board foot volumes, therefore product class #1 (PW) is not affected by this setting.

Stump ht: The stump height (ft) for each product category. Only volume below the stump is excluded.

Wt/cubic vol (ob), Weight/cord, Girard Form Class and Default Form Class: For the program to calculate accurate weight scaling values, provide for your local area values for the Green pounds per cubic foot (ob) and Green pounds (ob) per wt. cord data entry boxes. The green pounds per cubic foot volume outside bark is used to compute log weights by product group and the green pounds outside bark per weight cord value is used to compute cord wood volume for each product group. The program does not compute stacked cord wood volume.

Group Specifications

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Minimum useable hm: If a mill has a minimum stem length, you can enter that here and if a height is entered in the field less than that and the Tree H Error check is enabled, TC will tell you that you are less than the minimum.

Max merch len: Maximum merchantable length for each product class.

Min merch len: Minimum merchantable length for each product class.

Multiple Factor: TCruise uses this feature to calculate volume for trees erroneously entered. For example, if you merchandise logs to 16' lengths and tree tally is entered as 23', TCruise will use this multiple factor to merchandise the tree to the factor you specify. If 1/2 log is selected in the above example, TCruise will only calculate volume for 20' and ignore the extra 3'.

Wt/Cubic in IB: TCruise defaults to use lbs./cu. ft. outside bark. This option will override the default. If the lbs./cu. ft. value is an inside bark value then this box should be selected.

SL product redirector: This feature allows you to multisort a graded tree into different products. Set the log grade to the appropriate product and TC will send the portion of a stem that is assigned to that grade in the GAA screen to that product category.

Height record top diameter : This is the diameter to which each tree within this group will be measured at Hm. By measuring to this diameter, TCruise is able to use the profile function to merchandise each tree accordingly. In the case to the left, the height record top diameter of "0" inches is equal to Total Height. TCruise then uses the selected profile function to merchandise the tree according to the product specifications. This diameter must be less than or equal to the minimum pulpwood top diameter (ob).

SPECIFICATION:	PRODUCT					OK
	Pulpwood	Small	Medium	Sawtimber	Cull	Cancel
Number code	1	2	3	4	5	
Alpha code	PW	SM	MED	ST	CL	
Compute volumes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Threshold dbh.	4.6	7.6	8.6	15.6	NA	
Pulpwood top(ob)	3	3	3	3	NA	
Sawlog top(ob)	3	5	6	8	NA	7/3/2007
Max end dia(ob)	25	30	30	35	NA	Default FC
Log/bolt length.	5.25	16	16	16	NA	<input type="checkbox"/> Solid PW
Stump ht.	0.5	0.5	0.5	0.5	NA	The Default FC and Solid PW fields are obsolete.
Wt/cubic vol (ob)	58.5	58.5	58.5	58.5	NA	
Weight/cord	5450	5450	5450	5450	NA	
Girard form class	88	88	88	88	NA	
Min useable hm	0	0	0	0	NA	
Max merch len	9999	9999	9999	9999	NA	
Min merch len	0	0	0	0	NA	
Multiple factor	None	None	None	None	NA	
SL prod redirector	PW	SW	SW	SW	NA	
Wt/cubic in IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NA	
Height record top diameter (must be <= to pulpwood Min top diam. (ob))	3					<<<<
<input type="checkbox"/> Sawlog product group height are all usable sawlog heights for all species assigned to this group for all profiles.						
<input type="checkbox"/> Pulpwood product group height are all usable pulpwood heights for all species assigned to this group for all profiles.						
Other non-product specific settings:						
PW in tops weight/cubicvol.	58.5	Pulpwood in tops wt/cord		5450	Stump ht	0.5 Obsolete
Default pulpwood in tops computation options OVERRIDE for group						
<input type="checkbox"/> Enable override of default compute options						
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed).			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for graded trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Bethe volume function for graded trees. The stopper top must be set the Sawlog Top (SW).			
Minimum top pulpwood piece length	0					



Templates Menu

Group Specifications

Sawlog and Pulpwood product group height... If these boxes are checked, you can cruise product heights and then use form class and a selected, species-specific, profile function to calculate volume.

Pulpwood in tops weight/cubic vol., Pulpwood in tops wt/cord: Set values for calculating topwood volumes.

Default pulpwood in tops computation options OVERRIDE: If you check the appropriate boxes on the Species Codes and Associations page, TCruise will calculate topwood for every Species Group. If you do not want TC to calculate it for a specific group, check the **Enable override Box** for that group. If you only want TC to calculate topwood for a few Species Groups, then do not check the boxes on the Species Codes and Assn. page and instead check the appropriate boxes for those Species Groups on this page as shown here.

Minimum top pulpwood piece length: Minimum length that a topwood piece must be before the volume is included in volume report.

SPECIFICATION:	Pulpwood	Small	Medium	Sawtimber	Cull	OK
Number code	1	2	3	4	5	Cancel
Alpha code	PW	SM	MED	ST	CL	
Compute volumes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
Threshold dbh...	4.6	7.6	8.6	15.6	NA	
Pulpwood top(ob)	3	3	3	3	NA	
Sawlog top(ob)...	3	5	6	8	NA	7/3/2007
Max end dia(ob)	25	30	30	35	NA	Default FC
Log/bolt length...	5.25	16	16	16	NA	<input type="checkbox"/> Solid PW
Stump ht.	0.5	0.5	0.5	0.5	NA	
Wt/cubic vol (cb)	58.5	58.5	58.5	58.5	NA	The Default FC and Solid PW fields are obsolete.
Weight/cord	5450	5450	5450	5450	NA	
Guard form class	88	88	88	88	NA	
Min. useable hm	0	0	0	0	NA	
Max merch len	9999	9999	9999	9999	NA	
Min merch len	0	0	0	0	NA	
Multiple factor	None	None	None	None	NA	
SL prod redirector	PW	SW	SW	SW	NA	
Wt/cubic is lb	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NA	
Height record top diameter (must be <= to pulpwood Min top diam (ob))	3					<<<<
<input type="checkbox"/> Sawlog product group height are all useable sawlog heights for all species assigned to this group for all profiles.						
<input type="checkbox"/> Pulpwood product group height are all useable pulpwood heights for all species assigned to this group for all profiles.						
Other non-product specific settings:						
PW in tops weight/cubic vol	58.5	Pulpwood in tops wt/cord	5450	Stump ht	0.5	Obsolete
Default pulpwood in tops computation options OVERRIDE for group:						
<input type="checkbox"/> Enable override of default compute options			<input type="checkbox"/> Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed).			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top [SW].			
<input type="checkbox"/> Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Behave volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			
<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Behave volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulpwood in top for trees assigned to a Message or Behave volume function for graded trees. The stopper top must be set the Sawlog Top [SW].			
Minimum top pulpwood piece length: 0						

Group Specifications

After you set up 1 of your Group Specs, you can copy those same specs to other groups by selecting *Templates>Group Merchandizing Specifications/Prices> Duplicate/Copy Merchandizing Specifications*. This is particularly helpful with hardwood species that have very similar merch specs.

To utilize this function, select the groups on the right that you want to have the same merch specs (ex. **White Oak, Sweetgum, Poplar, Hickory, Misc. Hardwood**). Then click on the one group on the left that you want to duplicate from (ex. **Red Oak**). The specs will be duplicated.



Step #6 – Stumpage Parameters

When you have correctly set up each species group and the associated merchandizing specs, you can also input the associated values for each product. Do this by selecting *Templates > Group Merchandizing Specifications/Prices > Set a Groups Merchandizing Specifications/Prices* (or use the **Specs/Price** shortcut button) and then press the *Group prices* button for each group. Be sure and select the correct **volume unit** and then input the associated values for each product and if need be, each grade log.

Step #7 – Species Names and Codes

The next step is to select *Templates > Species Group Volume Function Assignment* (or the Volume Fnxs shortcut button) and enter the **Species Names** and the abbreviated **Species Codes** (up to 5 alpha or numeric characters) that you typically cruise. The **Species Codes** will appear on the handheld.

Sp code	Species name	Primary profile/Volume function	PN	Species group	Secondary profile/volume function	PN	%Bark
1	LDB	Loblolly	7	Loblolly	Mesavage TAB 10.0% dbt (104)F	104	104
2	SHL	Shortleaf	8	Shortleaf	Mesavage TAB 10.0% dbt (104)F	104	104
3	RD	Red Oak	82	Red Oak	Mesavage TAB 7.5% dbt (103)F	103	103
4	WO	White Oak	72	White Oak	Mesavage TAB 7.5% dbt (103)F	103	103
5	GUM	Sweetgum	4	Sweetgum	Mesavage TAB 5.0% dbt (102)F	102	102
6	POP	Poplar	52	Poplar	Mesavage TAB 5.0% dbt (102)F	102	102
7	HIC	Hickory	13	Hickory	Mesavage TAB 7.5% dbt (103)F	103	103
8	MHDW	Misc. Hardwood	25	Misc. Hardwood	Mesavage TAB 5.0% dbt (102)F	102	102
9	MPIN	Misc. Pine	28	Misc. Pine	Mesavage TAB 10.0% dbt (104)F	104	104
10	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
11	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
12	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
13	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
14	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
15	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
16	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
17	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
18	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
19	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
20	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0

Default pulpwood in tops computation options

- Compute pulpwood in tops even though standing pulpwood is not being calculated [pulpwood product class is suppressed]. Grade tree top pw will not be computed unless this box is checked!!!
- Calculate pulpwood in top for trees assigned to a standard profile function for nongrade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top [SW].
- Calculate pulpwood in top for trees assigned to a Mesavage or Behve volume function for nongrade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a Mesavage or Behve volume function for graded trees. The stopper top must be set the Sawlog Top [SW].



Species Names and Codes

It is important to note on this screen that you have **Species Names** and **Species Groups**. This can be a 1 to 1 relationship, or a many to 1 relationship. In other words, you can have a group for every species, or you can have several different pine species in the same Pine group. This means you can cruise them in the field by species and calculate their volumes with different volume calculators, but you will merchandize them the same and sum their volumes together in 1 group.

Species Code and Profile/Volume Function Association

Sp code	Species name	Primary profile/volume function	PN	Species group	Secondary profile/volume function	PN	SBark
1	LOB	Loblolly	7	Loblolly	Mesavage TAB 10.0% dbt (104)F	120	11.50
2	SHL	Shortleaf	8	Shortleaf	Mesavage TAB 10.0% dbt (104)F	104	104
3	RD	Red Oak	82	Red Oak	Mesavage TAB 7.5% dbt (103)F	103	103
4	WD	White Oak	72	White Oak	Mesavage TAB 7.5% dbt (103)F	103	103
5	GUM	Sweetgum	4	Sweetgum	Mesavage TAB 5.0% dbt (102)F	102	102
6	POP	Poplar	52	Poplar	Mesavage TAB 5.0% dbt (102)F	102	102
7	HIC	Hickory	13	Hickory	Mesavage TAB 7.5% dbt (103)F	103	103
8	MHDW	Misc. Hardwood	25	Misc. Hardwood	Mesavage TAB 5.0% dbt (102)F	102	102
9	MPIN	Misc. Pine	28	Misc. Pine	Mesavage TAB 10.0% dbt (104)F	104	104
10	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
11	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
12	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
13	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
14	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
15	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
16	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
17	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
18	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
19	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
20	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0

Default pulpwood in tops computation options:

- Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed). Grade tree top pw will not be computed unless this box is checked!!!
- Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).
- Calculate pulpwood in top for trees assigned to a Message or Behre volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a Message or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

Step #8 - Profile/Volume Calculation Functions

Next we need to assign the Profile Function and/or volume calculator(s) as follows: you can use Profile Functions (there are 340 such profiles built-in), Mesavage-Girard form class calculations, or custom tables or equations to calculate volume in TC. If you only use a **Primary volume calculator**, then TC will use that for all 4 product categories. If you use a **Primary and Secondary volume calculator**, then TC will use the Primary to calculate the Pulpwood product volume only and the Secondary for the 3 Sawtimber size products if they are turned on. As illustrated below, many people like to cruise their standing pulpwood to a letter top and then use a profile function to calculate that volume. Some use profile functions for their sawtimber products as well, but most like to cruise their sawtimber in log lengths and then use Mesavage-Girard to calculate the volumes.

Species Code and Profile/Volume Function Association

Sp code	Species name	Primary profile/volume function	PN	Species group	Secondary profile/volume function	PN	SBark
1	LOB	Loblolly	7	Loblolly	Mesavage TAB 10.0% dbt (104)F	120	11.50
2	SHL	Shortleaf	8	Shortleaf	Mesavage TAB 10.0% dbt (104)F	104	104
3	RD	Red Oak	82	Red Oak	Mesavage TAB 7.5% dbt (103)F	103	103
4	WD	White Oak	72	White Oak	Mesavage TAB 7.5% dbt (103)F	103	103
5	GUM	Sweetgum	4	Sweetgum	Mesavage TAB 5.0% dbt (102)F	102	102
6	POP	Poplar	52	Poplar	Mesavage TAB 5.0% dbt (102)F	102	102
7	HIC	Hickory	13	Hickory	Mesavage TAB 7.5% dbt (103)F	103	103
8	MHDW	Misc. Hardwood	25	Misc. Hardwood	Mesavage TAB 5.0% dbt (102)F	102	102
9	MPIN	Misc. Pine	28	Misc. Pine	Mesavage TAB 10.0% dbt (104)F	104	104
10	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
11	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
12	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
13	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
14	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
15	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
16	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
17	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
18	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
19	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0
20	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	0

Default pulpwood in tops computation options:

- Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed). Grade tree top pw will not be computed unless this box is checked!!!
- Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).
- Calculate pulpwood in top for trees assigned to a Message or Behre volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a Message or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).



Profile/Volume Calculation Functions

When you drop the Primary Profile/Volume Function list down, you will notice that 94 profiles show up automatically. Information regarding these profile functions can be found on your computer in the C:\Program Files\Heuristic Solutions Applications\Timber Cruise\TCruise.pdf file on page 46 & 47. You can also import 6 PMRC profile equations and 240 FIA profile equations into that same drop list by selecting Tools > Dll/exe Procedures > Dll pathnames and Browsing for the TC_FIA_SE_ProfileRepWt.dll file as shown below.

The screenshot shows a dialog box titled "Dll pathnames" with several input fields and buttons. The field for "Profile/Volume equation /table dll pathname" is circled in red and contains the text "C:\WINDOWS\system32\TC_FIA_SE_ProfileRepWt.dll". Other fields include "Export dll pathname", "Import dll pathname", "Raw data export dll pathname", and "Custom procedure dll pathname". There are "Browse" buttons for each field, and "Cancel" and "OK" buttons at the bottom.

Profile/Volume Calculation Functions

As shown below, if you select **profile number 120**, you will use Mesavage Girard form class to calculate your volume, but you can enter in your own **% Bark Thickness**. Note also the **Default Topwood computation boxes** already mentioned. You can also set a Minimum top pulpwood length.

The screenshot shows a dialog box titled "Species Code and Profile/Volume Function Association". It contains a table with columns: Sp code, Species name, Primary profile/volume function, PN, Species group, Secondary profile/volume function, and Bark. Row 120 is highlighted, showing "Mesavage 1AB NN no% dbt (120)" with a "Bark" value of 11.00. Below the table, there are several checkboxes for "Default pulpwood in tops computation options" and a field for "Minimum top pulpwood piece length" which is circled in red and set to 0.

Sp code	Species name	Primary profile/volume function	PN	Species group	Secondary profile/volume function	PN	Bark
1	LDB	Natural Loblolly Pine (7)	7	Loblolly	Mesavage 1AB NN no% dbt (120)	120	11.00
2	SHL	Natural Shortleaf Pine (8)	8	Shortleaf	Mesavage 1AB 10.0% dbt (104)	104	
3	RO	All red oaks combined (82)FC	82	Red Oak	Mesavage 1AB 7.5% dbt (103)F1	103	
4	WO	All white oaks combined (72)FC	72	White Oak	Mesavage 1AB 7.5% dbt (103)F1	103	
5	GUM	Sweetgum (4)	4	Sweetgum	Mesavage 1AB 5.0% dbt (102)F1	102	
6	POP	Yellow-poplar (52)FC	52	Poplar	Mesavage 1AB 5.0% dbt (102)F1	102	
7	HIC	Hickory	13	Hickory	Mesavage 1AB 7.5% dbt (103)F1	103	
8	MHDW	Misc. Hardwood	25	Misc. Hardwood	Mesavage 1AB 5.0% dbt (102)F1	102	
9	MPIN	Misc. Pine	28	Misc. Pine	Mesavage 1AB 10.0% dbt (104)F1	104	
10	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
11	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
12	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
13	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
14	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
15	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
16	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
17	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
18	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
19	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	
20	TBA	Natural Loblolly Pine (7)	7	Loblolly	Not Assigned (0)	0	

Default pulpwood in tops computation options:

- Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed). Grade tree top pw will not be computed unless this box is checked!!!
- Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Hm or Ht. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a Mesavage or Behre volume function for non-grade trees. Record Hm or Ht. Do not specify Hp.
- Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).
- Calculate pulpwood in top for trees assigned to a Mesavage or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

Minimum top pulpwood piece length: 0



Custom Volume Calculators

The screenshot shows the TCruise software interface. The 'Tools' menu is open, and 'Equation Managers' is selected, which has opened a sub-menu where 'Edit Volume Tables' is circled. To the right, the 'Volume table ranges - English setup' dialog box is open. It shows settings for a table titled 'ZeroVolume007' for 'Pine Table'. The 'FC measure' is set to 'Outside bark'. The 'Starting dbh' is 6, 'Ending dbh' is 40, and 'Dbh increment' is 2. The 'Starting Hm' is 16, 'Ending Hm' is 84, and 'Hm increment' is 8. The 'Starting FC' is 78, 'Ending FC' is 80, and 'FC increment' is 1. There are several checkboxes for volume calculation rules, with 'Sawlog (S) green weight ob (Gwob) to the pw top' and 'Doyle bkv to the sl top' checked.

Be aware that TCruise allows you to enter or modify custom equations or volume tables under the *Tools > Equation Managers* menu.

Here is an example of a Ton and Doyle table from 6 to 40" dbh beginning with 1 log and continuing up to 5 logs in ½ log increments

Misc. Computation Options

The screenshot shows the TCruise software interface with the 'Tools' menu open and 'Advanced Computation Options' selected. The 'Advanced computation settings' dialog box is open. Under 'Miscellaneous settings', the 'Use Hm for total ht (Ht) if mess. top == 0, and Age > 0' checkbox is checked. Under 'Volume calculation rule options', the 'Cubic volume calculation rule/formula' is set to 'Smalian's', and the 'Reported default board foot volume' is set to 'Doyle'. The 'Cubic volume calculation both length' checkbox is checked. The 'Use the Southern Doyle convention' checkbox is circled. The 'Logs to feet factor' is set to 16. Under 'Sawlog trim cubic volume, weight and length disposition', the 'Scrap' option is selected. Under 'Dbh measurement bias correction', the 'Lower decimal bound of one (1) unit dbh class' is set to 0.8 and the 'Lower decimal bound of two (2) unit dbh class' is set to 0.1.

Also be aware that there are several Misc. Computation Options under *Tools > Advanced Computation Options*. The most important of these is probably **unchecking the Use Southern Doyle box**. If you check this box then TCruise will automatically assign 1 bd ft/linear ft to logs that have a scaling end diameter of 8" or less. If you check this box, then TCruise might overpredict your Doyle volume in your small and/or upper logs.



Calculating Volume with TCruise

1. Normal Profile Function Cruise

{Pulpwood and sawtimber are being cruised to a Record Top diameter (usually 0-4") and assigned profile functions are being used to calculate the volumes for all enabled products.}

Columns needed for input using a Profile Function cruise: SPC, No, DBH, HM, HS, TM, PRD

DBH: Diameter at Breast Height (4.5') in inches

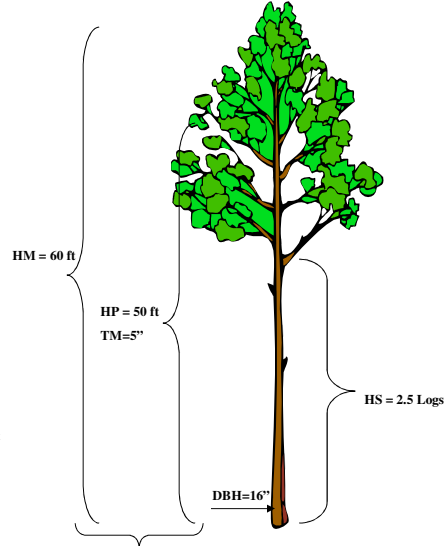
HM: Height to Record top (i.e. 0"-Total Height) Note: If only HM is input for the tree then TCruise will use the profile function to calculate the cubic foot volume for the tree. It will also calculate the amount of sawtimber to the specified sawtimber top and consider the rest of the stem above the sawtimber pulpwood. If a height value for HS is input, TCruise will calculate the volume for sawtimber to the specified HS height and consider everything above that height pulpwood.

HS: Sawtimber height for atypical or defective tree.

HP: Pulpwood height for atypical tree. If the tree you are measuring cannot be measured to the default record top (HM) then a height can be input in the HP column. If this is the case, a diameter at the HP height must be input into the TM column.

TM: Atypical or broken top diameter. Can be used in conjunction with HM or HP.

TCruise will use the species, dbh, and hm to build the profile of that tree. It will then determine where the sawtimber and pulpwood top diameters are for that stem and calculate the volumes for each of those segments (if the appropriate boxes are checked for topwood).



Calculating Volume with TCruise

2. Normal Form Class Cruise

{Pulpwood is being cruised to a product top diameter while sawtimber is being cruised in number of logs. Both are being calculated with Mesavage Girard Form Class equations.}

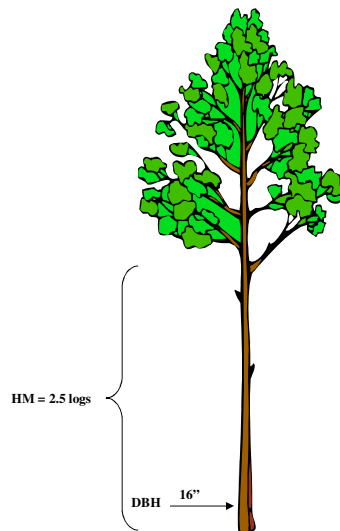
Columns needed for input using a Form Class cruise: SPC, No, DBH, HM, PRD

DBH: Diameter at Breast Height (4.5') in inches

HM: Pulpwood tree = Height to Pulpwood top

HM: Sawtimber tree = #logs or # feet to top of last log

Topwood above sawtimber products will be calculated if you check the appropriate boxes.





Calculating Volume with TCruise

3. Profile Function and Form Class Cruise

{Pulpwood is being cruised to a record top diameter and is being calculated with profile functions (primary volume function), while sawtimber is being cruised in number of logs and is being calculated with Mesavage Girard Form Class equations (secondary volume function).}

Columns needed for input using a Form Class cruise: SPC, No, DBH, HM, TM, PRD

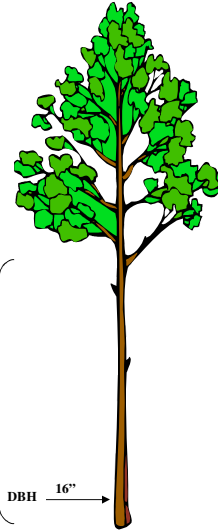
DBH: Diameter at Breast Height (4.5') in inches

HM: Pulpwood tree = Height to Record top

HM: Sawtimber tree = #logs or # feet to top of last log

TM: Atypical or broken top diameter. Can be used in conjunction with HM or HP.

Topwood above sawtimber products will be calculated if you check the appropriate boxes.



Step #9 - Species Grade

In a similar manner to defining products, we can also define up to 10 different grades for each Species Group by selecting *Templates>Grade by Group Names*. This box will change each graded product as desired. The New code is what will show up on the handheld.

	Group name	Default grade name	New grade name	Default code	New code	Default type	New type
1	Default	Grade 1	Grade 1	LG_1	LG_1	Saw wood	Saw wood
2		Grade 2	Grade 2	LG_2	LG_2	Saw wood	Saw wood
3		Grade 3	Grade 3	LG_3	LG_3	Saw wood	Saw wood
4		Grade 4	Grade 4	LG_4	LG_4	Saw wood	Saw wood
5		Grade 5	Grade 5	LG_5	LG_5	Saw wood	Saw wood
6		Grade 6	Grade 6	LG_6	LG_6	Saw wood	Saw wood
7		Grade 7	Grade 7	LG_7	LG_7	Saw wood	Saw wood
8		Grade 8	Grade 8	LG_8	LG_8	Saw wood	Saw wood
9		Grade 9	Grade 9	LG_9	LG_9	Saw wood	Saw wood
10		Grade 10	Grade 10	LG10	LG10	Saw wood	Saw wood
11	Loblolly	Grade 1	Resale	LG_1	SA	Saw wood	Saw wood
12		Grade 2	Chipnsaw	LG_2	CNS	Saw wood	Saw wood
13		Grade 3		LG_3		Saw wood	Saw wood
14		Grade 4		LG_4		Saw wood	Saw wood
15		Grade 5		LG_5		Saw wood	Saw wood
16		Grade 6		LG_6		Saw wood	Saw wood
17		Grade 7		LG_7		Saw wood	Saw wood
18		Grade 8		LG_8		Saw wood	Saw wood
19		Grade 9		LG_9		Saw wood	Saw wood
20		Grade 10		LG10		Saw wood	Saw wood



Species Grade

OPTION #1

TCruise gives you 2 options on how you want to use the Species Grade dialogue. If you want to actually GRADE each log segment of certain trees (i.e. – 3 face clear, 2 face clear, Prime, #1, etc.) and have that volume reported by grade under the appropriate product class that corresponds with the dbh entered for that tree, then set up the **Sawlog Product Redirector** boxes as shown here (with SW as the selection for each product).

SPECIFICATION	Pulpwood	Onionsaw	Medium	Sawtimber	D/L
Number code	1	2	3	4	5
Alpha code	Pw	ONS	MED	ST	CL
Compute volume	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Threshold dbh	6	10	12	14	NA
Pulpwood top(db)	3	3	3	3	NA
Sawlog top(db)	1	5	6	8	NA
Max end dia(db)	24	30	30	40	NA
Log/foot length	10	16	16	16	NA
Stump Ht.	0.5	0.5	0.5	0.5	NA
W/cubic vol (db)	58.5	58.5	58.5	58.5	NA
W/weight/wood	5450	5450	5450	5450	NA
Grade form class	78	78	78	78	NA
Min top dia (db)	6	6	6	6	NA
SL prod redirector	Pw	SW	SW	SW	NA

Species Grade

In this example, we have a 16' log which is Log Grade 1. Then we have a 4' Cull segment (i.e. catface). Lastly we have 32' of Log Grade 2. If we had made this a 16" dbh tree, then all of this graded volume would appear under the Sawtimber Product category from the previous slide (since the Sawtimber product group started at 14"). If the dbh of this stem had been 12", then the graded volume would have been reported under the Medium Product category.

With a form class cruise, the Stopper should be set to SW. TCruise is assuming that the top of the last log is where sawtimber ends and topwood starts if you are calculating it. With a profile function cruise, Stopper top is extremely important because the Stopper tells the profile builder where the scaling end of the last segment entered stops. More info about grading in a Profile function cruise is found in the Normal Cruise Techniques section of this manual.

Segment	Length	Grade	Stopper
Segment 1	16	LG_1	SW
Segment 2	4	CULL	SW
Segment 3	32	LG_2	SW
Segment 4		SW	SW
Segment 5		SW	SW
Segment 6		SW	SW
Segment 7		SW	SW



Species Grade

Option #2

The other way to use the species Grade dialogue is to use it as a means of MULTI-SORTING one stem into unique product segments. If you graded using Grade Auto-Assign (GAA), TCruise is still going to sum and assign the volumes of all graded segments in one stem to one product category based on dbh. But if you use the Sawlog Product Redirector in the Define > Species Groups screens, on the Grade Report, you can assign or add the total volume of a given product category to a grade.

Species Group Loblolly Timber Product Merchandizing S...

SPECIFICATION	Pulpwood	Chipnsaw	Medium	Sawtimber	C&B
Number code	1	3			
Alpha code	PW	CNS	MED	ST	CL
Compute volumes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Threshold dbh	6	10	12	14	NA
Pulpwood top(db)	3	3	3	3	NA
Sawlog top(db)	3	5	6	8	NA
Max end dia(db)	24	30	30	40	NA
Log/boil length	10	16	16	16	NA
Stump ht	0.5	0.5	0.5	0.5	NA
Wt/cubic vol (lb)	58.5	58.5	58.5	58.5	NA
Weight/cood	5450	5450	5450	5450	NA
Grade form class	78	78	78	78	NA
Min. useable hm	0	0	0	0	NA
SL prod redirector	PW	CNS	SW	SA	NA

Allow saw wood product for top/bottom class
 Catch all default Grade form class (average across size class) 78
 Height record top diameter (must be <= to pulpwood Min top diam (db)) 3
 Sawlog product group height are all usable sawlog heights for all species assigned to this group for all profiles
 Pulpwood product group height are all usable pulpwood heights for all species assigned to this group for all profiles
 Other non-product specific settings:
 PW in tops weight/cubic vol 58.5 Pulpwood in tops wt/cood 5450 Stump ht 0.5 Obsolete
 Default pulpwood in tops computation options OVERRIDE for group
 Enable override of default compute options
 Calculate pulpwood in top for trees assigned to a standard profile function for non-grade trees. Record Min or Ht. Do not specify Hp.
 Calculate pulpwood in top for trees assigned to a Message or Behre volume function for non-grade trees. Record Min or Ht. Do not specify Hp.
 Compute pulpwood in tops even though standing pulpwood is not being calculated (pulpwood product class is suppressed).
 Calculate pulpwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).
 Calculate pulpwood in top for trees assigned to a Message or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

Species Grade

In the field, the grade screen would be very similar to the previous example, but the results would be different because of how the Sawlog Product Redirector was set up. Here the volumes from both the graded Resale log, SA, and the Chipnsaw log, CNS would show up in the Sawtimber product category (because the dbh of this tree fell into the sawtimber product category), but in the **Grade Report**, the total volume from the regular Chipnsaw product category would be added to the volume of all of the CNS log segments.

The purpose of this feature is to allow the user to segment a stem as the logger would and then estimate the total volume of a given product across the stand irregardless of the stem's dbh.

Manual merchandi...

Seg length G-AutoAssign

Stump ht Grade: %Def

Segment 1	16	SA	
Segment 2	4	CHILL	
Segment 3	32	CNS	
Segment 4		SW	
Segment 5		SW	
Segment 6		SW	
Segment 7		SW	

Buttons: OK, Cancel, Delete, Stopper, PW, Broken Top dia.



Species Grade

NOTE: On the regular **Executive Summary Report**, the CNS volume will be under CNS and all of the graded sawtimber volume will be under sawtimber. It is only on the **Grade Report** that the Total volume of a Product category and its corresponding log segments will be added together.

For example, using the data entered on the previous slide plus one other normal nongraded CNS size tree, we can see on the **Executive Summary** report that the CNS volume is reported under the Chipnsaw product and all of the graded volume is reported under Sawtimber product.

Table 2. Per unit land area volume and reproduction executive summary.
Tract.....1
Species group: Loblolly

Row	Cruise Variable	Product				Total
		Pulpwood	Chipnsaw	Medium	Sawtimber	
1	NumberOfTrees..:	0.0	10.0	0.0	10.0	20.0
2	BasalArea.....:	0.0	5.5	0.0	21.8	27.3
3	Mean.trees.dbh..:	0.0	10.0	0.0	20.0	15.8
6	PulpWood(Tons):	0.0	2.8	0.0	2.0	2.8
10	SawWood(Tons):	0.0	2.3	0.0	21.3	23.7
13	Doyle.....:	0.0	150.6	0.0	3025.7	3176.3
17	Total(Tons)....:	0.0	5.1	0.0	21.3	26.5

Table 4. Per unit land area grade volume executive summary.
Tract.....1
Species group: Loblolly
Tree product.: All products

UN	Sawlogs						Total
	Pulpwood	Ungraded	Resale	Chipnsaw	Grade3	Grade4	
TN	2.8	0.0	9.6	14.2	0.0	0.0	26.5
DY	0.0	0.0	1407.1	1769.2	0.0	0.0	3176.3

On the **Grade Report**, however, the Chipnsaw product volume is added to the Chipnsaw grade instead of showing up under the Ungraded grade. This occurs because of the Sawlog Product Redirector.

Species Grade

The last step in Defining Species Grade is to set up Default Grade Options and Grade Reports. To do this, go to *Templates > Grade Parameters* and set the Default segment type to **LG_1** and the Default stopper height to **SW** for a Form Class Cruise or **HM** for a Profile Function Cruise. Also, you can select how you want to print your grade reports.

Grade measur... [X]

Current grade options:

Default segment type: LG_1

Default stopper height: SW

Print per acre grade report

Print total tract grade report

Keep separate log grade prices by tree product

Print grade reports by tree product

Print grade reports by dbh class

Print grade reports by product, and dbh class

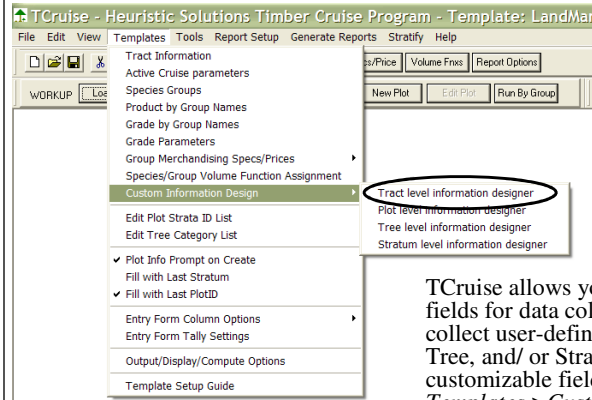
Use quick grade dialog

Auto grade

Cancel OK



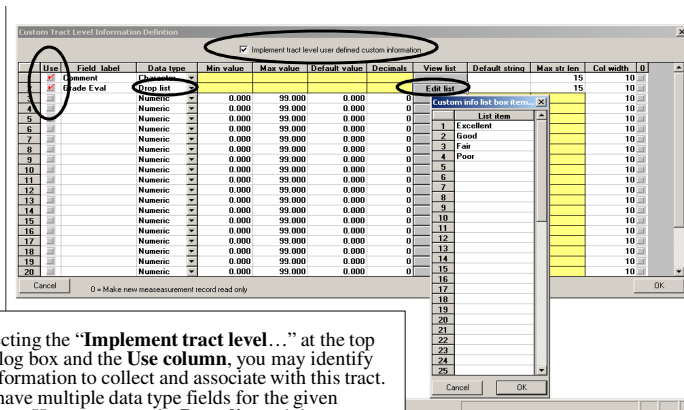
Step # 10 – Custom Information Design



TCruise allows you to customize data input fields for data collection. We have a choice to collect user-defined data for every Tract, Plot, Tree, and/ or Stratum. To access the customizable field setup screens, select *Templates > Custom Information Design > Tract, Plot, Tree, or Stratum level information designer*.

All of the designers work the same, so we will only look at the **Tract** level information designer.

Customizing Tract Data



After selecting the "Implement tract level..." at the top of the dialog box and the **Use column**, you may identify certain information to collect and associate with this tract. You can have multiple data type fields for the given information. Here we created a **Drop list** and then populated that list with the **Edit list** button.



Customizing Tract Data

To enter the custom data, select the **Tract shortcut button** and then select the **Enter user defined tract data**

Data item	Data value
1	Comment High Volume
2	Graded vol Grad
3	LoggingCond Fair
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

To enter this data in the field, from the handheld select *Edit>Tract Info>Enter user defined tract data*

Press *OK* when finished

Custom Information Design

If you have elected to use the custom level information designer, you can input that data in either the office or the field as follows:

Custom **Tract** level information: (once)

Office: Tract→Enter Tract level information

Field: Edit→Tract Info→Custom Info

Custom **Plot** level information: (before every plot)

Office: New Plot→Plot info
→Enter user defined plot data

Field: Edit→Plot Info→Custom Info

Custom **Tree** level information: (on every plot and tree as needed)

Office and Field: Will be another column in the tally sheet on each plot



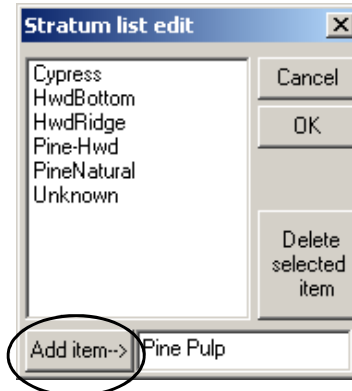
Step #11 – Plot Strata ID List

TCruise supports the stratification of stands in the field. Our job is to define the stratum. To begin stratification select *Templates > Edit Plot Strata ID List*

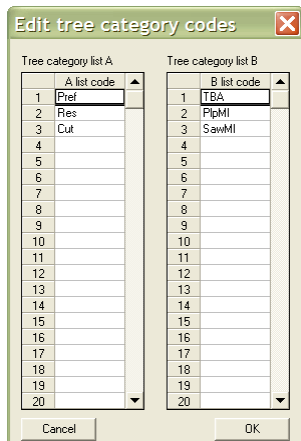
To add a strata, simply type in the name next to the Add item button and then press the **Add item** button and your strata will be added to the list.

Delete an item from the list by selecting it and then pressing the Delete selected item button.

Stratified cruises will be covered more fully in the specialty cruises section.



Step #12 - Tree Category List

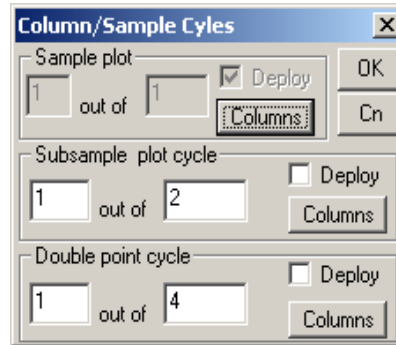


TCruise also allows you to input custom tree information in the *Templates>Edit Tree Category Codes* columns. In the field, these lists will be displayed on a tree by tree basis, so you can organize your trees into categories. A good example is to mark each tree as Cut or Leave, or Preferred, Reserve, Cut, or 1, 2, 3, 4. When you get back to the office, you can subset the cruise by Tree Category.



Step #13 - Customizing the Display Columns

TCruise will allow you to customize the display columns for data entry. For example, if you are not collecting regeneration data then you do not need to see the columns for collecting regeneration information. To customize the display columns select *Templates > Entry Form Column Options > Hide/Order Grid Columns*. The screen to the right should appear.

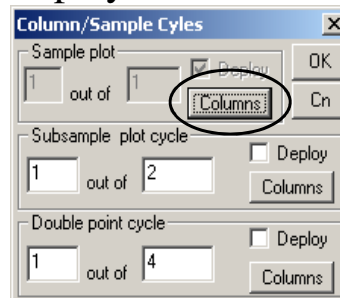


Customizing the Display Columns

To begin reordering the columns, press the **Columns** button in the Sample Plot section of the dialog box.

We can now select the columns we want to see by selecting the box next to the column heading. In this example we will be using the no., hm, tm, and prd (product) columns. Press OK when finished.

Subsample plot cycle and Double Point cycle will be discussed in the Specialty Cruise section.





Customizing the Display Columns

Column Meanings

no. = default number column = The number of occurrences.

hm = merch height = Height to record top diameter with profile cruise or product height with Form Class cruise.

hs = sawtimber height = Height to sawtimber top when using profile functions. Usually entered when a defect prevents the sawtimber section of a tree to reach the minimum sawtimber top diameter. Hs should only be used when using profile functions.

hp = pulpwood height = Height to the pulpwood top when using profile functions. Usually entered when a defect or broken top prevents the tree from reaching Hm (height to record top). When a height value for Hp is entered a top diameter for tm should also be entered so that TCruise will accurately estimate the volume of the tree.

tm = merchantable top = Broken or stopper top diameter if different from record top diameter. No volume calculated above this.

fc = form class = Column to record form class per tree. If 20+ trees recorded across dbh class, TC will calculate FC regression and apply to rest of cruise.

prd = product = The product group of the tree. TCruise will automatically assign a tree to a product group based on its threshold dbh. Select a product for the tree only if the product class is lower than the class that would be auto assigned. For example, a sawlog sized tree with no sawlog could be down graded to pulpwood and TCruise would only calculate a pulpwood volume for the tree.

age = Tree age. Used for site index calculation. The species code of the tree must match the default site index species code.

ht = site index height = Total height (feet) of the site index tree whose age is recorded in the Age column. At least 10 site index trees well distributed within the tract should be measured to obtain a reliable estimate of site index for the designated site index species.

Customizing the Display Columns

Column Meanings

rg = radial growth = Radial growth (inches) at breast height of a dbh growth measurement tree. The number of years included in the radial growth must be equal to the growth projection interval assigned for the cruise. At least 20 growth trees evenly distributed across the encountered dbh classes for a species group are required to obtain a reliable growth projection. sbt = single bark thickness

sbt = single bark thickness = Single bark thickness (inches) at breast height of a dbh growth tree. If the radial growth cell (rg) is non-blank, sbt must be non-blank and visa versus.

r = reproduction tree = Check this box, if the data on the line is a reproduction count. The only non-blank cells allowed on a repro plot record are SpC, Num, and Dbh. Reproduction counts without an assigned dbh are put in the zero (0) dbh class. Do not attempt to use a repro line to record any other type of data.

o = offplot measurement = A check informs TCruise that the tree measurements are on an off-plot/point height sub-sample, site index, and/or growth tree. Record data on off-plot trees only if insufficient on-plot tree height sub-sample, site index, or growth trees cannot be found to meet TCruise minimum regression observation number requirements. Rp and Op should never be simultaneously checked. Off plot tree volume is not calculated.

p = pulpwood tree = Check this if the tree tallied as pulpwood will always be pulpwood as has no chance of becoming a higher value product.

tca = tree category A = Contains the Tree Category A info set up in the template.

def = % defect

tcb = tree category B = Contains the Tree Category B info set up in the template.

u1-u22 = custom columns defined in the Custom Tree Level setup



Customizing the Display Columns

Columns needed for a NORMAL Profile Function Cruise

{Pulpwood and sawtimber are being cruised to a Record Top diameter (usually 0-4”) and profile functions are being used to calculate the volumes. }

Columns

spc – Species

dbh – Diameter at breast height

hm – Height to record top diameter (Defined in Group Merchandising Specs.)

hs – Height to sawtimber top when using profile functions. Usually entered when a defect prevents the sawtimber section of a tree to reach the minimum sawtimber top diameter. Hs should only be used when using profile functions.

hp – Usually entered when a defect prevents the tree from reaching the height record top diameter. If hp is used a tm diameter is required.

tm – Broken or stopper top diameter if different from record top diameter. No volume calculated above this.

prd – The product group of the tree. TCruise will automatically assign a tree to a product group based on it’s threshold dbh. Select a product for the tree only if the product class is lower than the class that would be auto assigned. For example, a sawlog sized tree with no sawlog could be down graded to pulpwood and TCruise would only calculate a pulpwood volume for the tree. You usually leave the default product at AA. Choose GAA if grading, or actual product if downgrading product class.



Customizing the Display Columns

Columns needed for a NORMAL Form Class Cruise

{Pulpwood is being cruised to a merchantable pulpwood top diameter while sawtimber is being cruised in number of sawlogs. Both are being calculated with Mesavage Girard Form Class equations. }

Columns

spc – species

dbh – diameter at breast height

hm – number of logs or number of feet to top of last log

prd – AA, or GAA if grading, or PW if have sawtimber size pulpwood tree





Customizing the Display Columns

Columns needed for a Profile Function and Form Class Cruise

{Pulpwood is being cruised to a letter top (i.e. 3" or so) and being calculated with profile functions and sawtimber is being cruise in number of logs and being calculated with Mesavage Girard Form Class}

Columns

spc – species

dbh – diameter at breast height

hm – number of logs or number of feet to top of last log

tm – diameter of broken top tree or tree that will not make a letter pulpwood top

Note- need to enter this for sawtimber if have broken top and are calculating topwood.

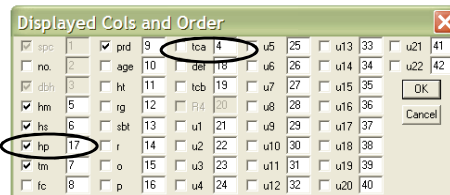
prd – AA, or GAA if grading, or PW if have sawtimber size pulpwood tree



Customizing the Display Columns

Changing the Column Order

The order of the columns can easily be changed on the PC by changing the number that is next to the column heading. In the example below, the **tca** column is being swapped with the **hp** column.





Customizing the Display Columns

We can also customize the actual cruise column names used in field data collection. To access this dialogue, select *Templates > Entry Form Column Options > Edit Standard Cruise Column Names*.

The Reassign standard column names dialogue appears and gives us the option of renaming every column that will show up on the PC or handheld.

Use	PC default name	PC new name	HH def nm	HH new nm	Min value	Max value	Default value	Read only	Decimals	Units
1	Use SpC	SpC	SpCd	SpCd				<input type="checkbox"/>		
2	Use Num	Num	no	no	0	999	1	<input type="checkbox"/>		
3	Use Dbh	Dbh	dbh	dbh	0.0	100.0	0.0	<input type="checkbox"/>	1	in/cm
4	Use Hm	Hm	hm	hm	0	275	0	<input type="checkbox"/>		ft/dm
5	Use Hz	Hz	hs	hs	0	275	0	<input type="checkbox"/>		ft/dm
6	Use Hp	Hp	hp	hp	0	275	0	<input type="checkbox"/>		ft/dm
7	Use Tm	Tm	tm	tm	0	99	0	<input type="checkbox"/>		in/cm
8	Use FC	FC	fc	fc	0	98	0	<input type="checkbox"/>		
9	Use Tree Product	Tree Product	prd	prd				<input type="checkbox"/>		
10	Use Age	Age	age	age	0	999	0	<input type="checkbox"/>		yr
11	Use HI	HI	hi	hi	0	275	0	<input type="checkbox"/>		ft/dm
12	Use RadG	RadG	radg	radg	0.00	30.00	0.00	<input type="checkbox"/>	2	in/cm
13	Use SgB	SgB	sbt	sbt	0.00	10.00	0.00	<input type="checkbox"/>	2	in/cm
14	Use Rp	Rp	r	r				<input type="checkbox"/>		
15	Use Op	Op	o	o				<input type="checkbox"/>		
16	Use Po	Po	p	p				<input type="checkbox"/>		
17	Use TCaA	TCaA	TCAnn	TCAnn				<input type="checkbox"/>		
18	Use Def	Def	d	d	0	99	0	<input type="checkbox"/>		
19	Use TCaB	TCaB	TCBnn	TCBnn				<input type="checkbox"/>		

Customizing the Display Columns

Here is an example of editing the Standard Cruise Column Names.

Hm column before custom column naming

	SpC	Num	Dbh	Hm	Hz	Hp	Tm	TCaA	PN	Tree Product
1	1	1						Leav	0	AutoAssign
2	1	1						Leav	0	AutoAssign
3	1	1						Leav	0	AutoAssign
4	1	1						Leav	0	AutoAssign
5	1	1						Leav	0	AutoAssign
6	1	1						Leav	0	AutoAssign
7	1	1						Leav	0	AutoAssign

Hm column after custom column naming

	SpC	Num	Dbh	HI	Hz	Hp	Tm	TCaA	PN	Tree Product
1	1	1						Leav	0	AutoAssign
2	1	1						Leav	0	AutoAssign
3	1	1						Leav	0	AutoAssign
4	1	1						Leav	0	AutoAssign
5	1	1						Leav	0	AutoAssign
6	1	1						Leav	0	AutoAssign
7	1	1						Leav	0	AutoAssign



Step #14 – Report Options

Now that we have all of the cruise parameters, species codes and group assignments, profile functions group merchandizing specifications and prices set, it is time to select which reporting options are desired. There are a wide range of built-in reporting options available. These also allow the end-user to decide which volume parameters (cords, tons, cubic feet, etc) are going to be printed.

To access these options, select *Report Setup > Report Options* (or the Report Options shortcut button).

Report Options

The Reports **General Settings** are here.

If you want a **spreadsheet style stock-stand table**, set that up here.

If you want **sampling errors, stats**, etc. then uncheck these boxes here.

You can create a **Species Composite** stand table using this dialogue here.

The best way to determine what info you want to see is to make the report as small as possible and then check or uncheck various boxes and see how the result changes when you Run by Groups.



Report Options

Report settings

General settings

- Screen characters per unit
- Make executive summary one page
- Suppress executive summary**
- Make two (2) unit dbh class midpoints odd numbers
- Dbh class interval width for stand table reports:
- **The reproduction, cull, and submerchable reports will not be printed if Suppress executive summary is checked.

Special table print selection

- Print unit land area grade report
- Print reproduction report
- Print total tract grade report
- Print sub-merchable report
- Print cull tree stand tables
- Print site index report
- Print tree lengths by product, and dbh

Spread sheet import style stand-stock table print options

- Print total tract volumes by dbh class
- Print total tract stumpage values by dbh class
- Print per unit of land area volumes by dbh class
- Print per unit of land area stumpage values by dbh class

Suppression options

- Suppress noncritical error messages
- Suppress printing sampling areas
- Suppress printing required sample size estimates
- Suppress printing raw statistics (CV, STDs, and SEs)
- Suppress printing species group merchandising specs.
- Suppress printing empty dbh classes in stand stock tables

Species composite stand table options

- Print species composite stand stock table reports
- Stand table report minimum dbh:
- Stand table report maximum dbh:
- Min and max stand table dbhs are for composite tables only

Classic style stand-stock table print options

- Print total tract volumes by dbh class
- Print total tract stumpage values by dbh class
- Print per unit of land area volumes by dbh class
- Print per unit land area stumpage values by dbh class

Volume units for tables

Table:	Saw-timber:	Pulp-wood:	Print options:
Table 1	Gr tons (o b)	Gr tons (o b)	<input checked="" type="checkbox"/> Print Table 1
Table 2	Doyle	Wt cords	<input checked="" type="checkbox"/> Print Table 2
Table 3	Gr tons (o b)	Gr tons (o b)	<input type="checkbox"/> Print Table 3
Table 4	Gr tons (o b)	Gr tons (o b)	<input type="checkbox"/> Print Table 4

>>> **Select Volumes to Print** <<<<

Cancel OK

Please note that many of the Special report options will be covered in greater detail in the Speciality Cruise Section.

If you want a **Classic Style Stand-Stock Table** check the appropriate boxes here. You also have options for the volume units for sawtimber and pulpwood products in combinations of up to four different reports. In this example table 1 will have Sawtimber and Pulpwood in Tons, while Table 2 will have Sawtimber in Doyle and Pulpwood in Cords.

In order to control volume parameters for all of the other reports chosen in this box, select the **Select Volumes to Print** button.

Selecting Volume Variables

Notice that there are a large number of volume variables you may elect to have printed. Simply select which ones you want by left-clicking the check on the left. For those variables you do not wish to have printed, simply left-click off the check.

When you are finished, click OK. This gets you back to the *Report Options* screen.

Select volume vari...

Volumes to Print

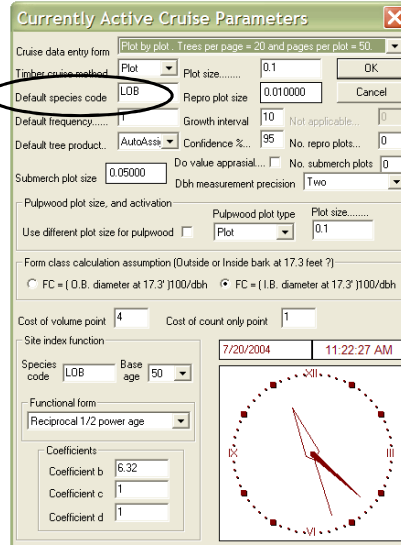
- NumberOffTrees
- BasalArea
- Mean tree dbh
- PulpWood(CVob)
- PulpWood(CVib)
- PulpWood(Tons)
- PulpWood(Cord)
- SawWood(CVob)
- SawWood(CVib)
- SawWood(Tons)
- SawWood(Cord)
- International
- Doyle
- Scribner
- Total(CVob)
- Total(CVib)
- Total(Tons)
- Total(Cord)
- Pulpwood(\$)
- Solidwood(\$)
- Total(\$)

Cancel OK



Step #15 – Enter the Default Species Code

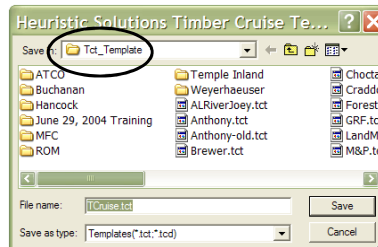
Now that your Species Groups and Species Codes have been established, you need to go back to the Active Cruise Parameters Screen (select Params) and enter your Default Species Code. This needs to match one of the codes you entered on the Volume Fnx screen.



Step #16 - Saving the Template

Now that we have set the cruising and workup parameters for TCruise, we need to save the information as a template. To do so, select *File > Save Input as Template*.

The default Save in folder will be the **Tct_Template**, as shown to the right. Type in the name of the template you wish to save the information as and include .tct when naming. For example, we will save the file as the Training template. I will type in the full name of *Training.tct* in the File name box and press Save.



CAUTION: If you do not enter an extension (.tct), T-Cruise will have no way of distinguishing the file type in this case.

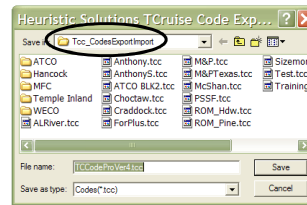
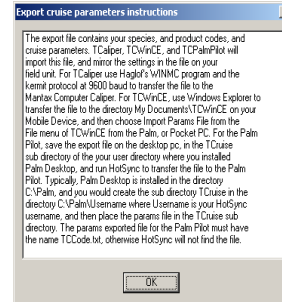
Once this file is saved, it becomes the template in the active document. Also, whenever you want to use this template in the future, make sure to go to *File/New*. It will then go to the above template directory and allow you to choose which template you will need.



Step #17 - Exporting Codes and Parameters

We can now transfer the template information to our handheld for cruising purposes. Select *File > Export Codes and Parameters > Export to TCWinCE Professional Edition Version 4.00.*

After pressing the OK button you will be asked to name the .tcc file. Notice that TCruise is saving the file in the **Tcc_CodesExportImport** folder. Again while naming the file, you will also need to include the extension, which in this case will be .tcc. We can now transfer the file into your handheld via ActiveSync



Step #18 - Syncing with Your PC

A. – Install Microsoft Activesync

Microsoft Activesync is a free program that allows a handheld device to be synchronized with a computer. If you are using a computer that does not have Microsoft ActiveSync installed (i.e. look at All Programs under the start menu), then **you will need to install it** from your LandMark Customer thumbdrive, or download and install it from our website (<http://www.landmarksystems.com/support/microsoftactivesync.htm>).



Syncing with Your PC B. – Plug in your Handheld

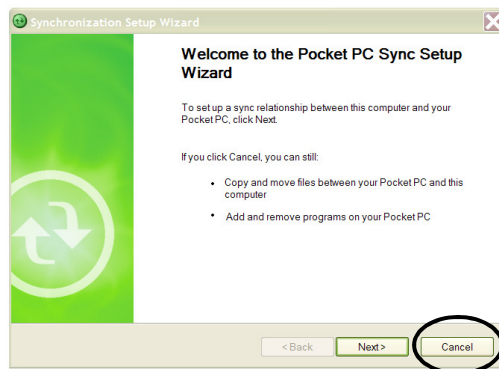
When you finish installing it, it will ask you if you want it to search for a Mobile Device (ie. Recon or Ranger). **Plug your handheld into your PC with the supplied download cable and then select “Yes”.**

You will hear an obnoxious dinging noise and as it scans your computer’s ports to try to find the new Mobile Device.



Data Transfer Port

Syncing with Your PC C. – Cancel the Partnership

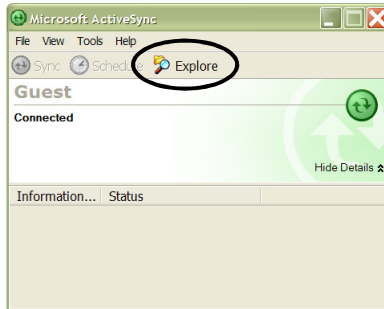


Once you are connected you should see the Partnership dialogue box on your screen. You will **ALWAYS** select **Cancel** unless you want to use your handheld as a PDA and transfer email, schedules, contacts etc. back and forth.



Syncing with Your PC

D. – Select Explore



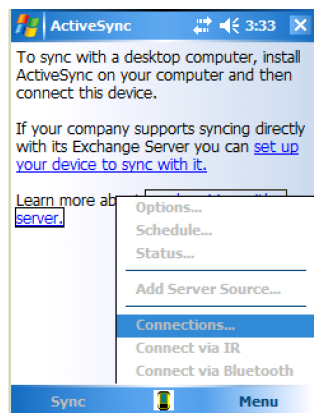
If you see the Microsoft ActiveSync dialog box as shown to the left, you have connected correctly and are ready to begin file transfer.

To find the shapefiles on your handheld, click **Explore** and then navigate to the correct Export directory.

Troubleshooting ActiveSync

#1 – Check the Handheld

If you are having trouble syncing with the computer, you need to make sure that that ActiveSync on the handheld is configured correctly as shown below.



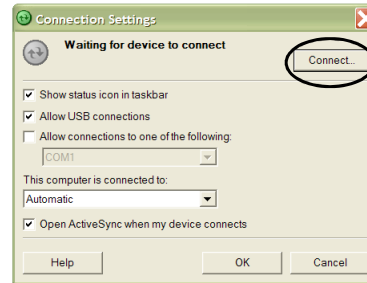
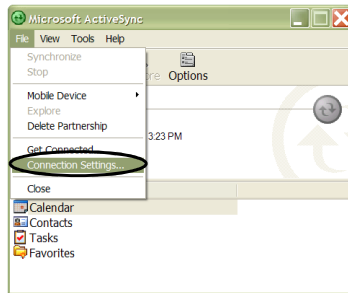
With Windows Mobile 5, open ActiveSync from the Start menu, and then go to Menu > Connections make sure the “When cradled Synchronize all PCs using this connection” Box is Checked and that it is set to USB.



Troubleshooting ActiveSync

#2 – Check your PC

If you have successfully installed ActiveSync, checked the handheld parameters, and are still having trouble, then open the Activesync Dialogue box on your Computer check the **Connection Settings** under **File**.

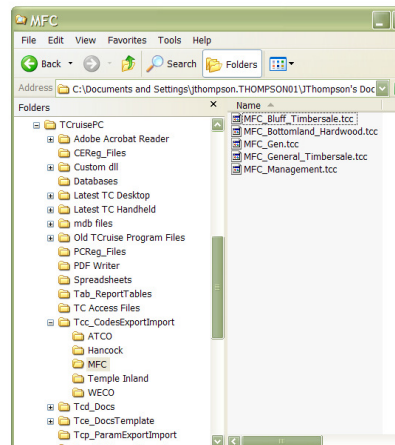


Depending upon your connection type, make sure that the **Allow USB connection** boxes are selected. Then select **Connect**.

Step # 19 - Transferring the .tcc file to Handheld

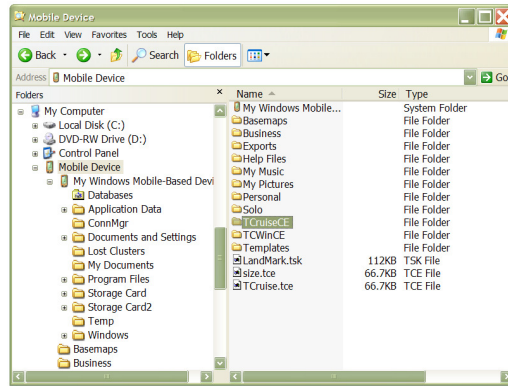
Now that we are connected to the PC, we can begin transferring files. To do so, we must use Windows Explorer as the avenue for transfer. Open Windows Explorer (right click on the My Computer Icon, Left click on Explore). Navigate to the folder where you saved the .tcc file. It should be **C:\My Documents\TCruisePC\Tcc_CodesExportImport**.

Find the .tcc files you created in TCruise Office and select them. Right Click on the file and select Copy.





Transferring the .tcc file to Handheld



Next, navigate to the Mobile Device Location and double left click the **TCruiseCE** shortcut. This will take you to one of the following locations:

Pocket PC – Built-in Storage\My Documents\TCruiseCE

Windows Mobile - My Documents\TCruiseCE

Lastly, right click on that folder and select paste. The Copy & Convert dialog box will appear, Select Yes, and your files will be transferred.