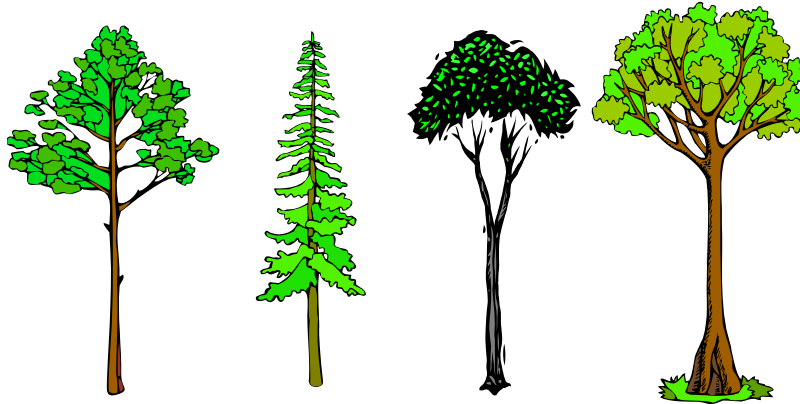


## An Introduction to TCruise



by LandMark Systems

## Course Overview

- 4 Types of Files used in TCruise
- 19 Steps to Setting Up a TCruise Template
- “Normal” Cruise Techniques
  - Intro to TCruiseCE
  - Collecting Field Data
    - Form Class Cruise vs. Profile Function Cruise
  - Transferring Cruise Data to the PC
  - Calculating Volumes
- Specialty Cruises
  - 100% Tally and Strip Cruises
  - Cumulative Tally
  - Tree Category Cruises
  - Stratified Cruises
  - Tree or Log Average Cruises
  - Multiple Cruisers on the same Stand
  - Site Index Cruises
  - Reproduction and Submerch Cruises
  - Double Point Cruises
  - Stump Cruises
  - Height Subsample Cruises
  - Audit and Remeasurement Cruises
  - Custom Form Class Cruises
  - Entering Tally Card Data in the Office
- RTI and the LandMark Export Module

## How TCruise Works

- The forester creates a Template to define all of the specifications for cruising and calculations. Multiple templates can be created to adjust to the different tract types and cruising needs. (i.e. 1/10<sup>th</sup> acre Plot cruise vs. BAF 10 Point cruise vs. BAF 20 Point cruise)
- After the field data is collected, it is transferred and joined with the template for calculating volume estimates.

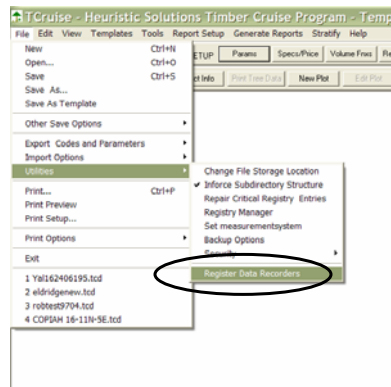
## Definition of File Types

- There are several file types used with TCruise: .tct, .tcc, .tce, and .tcd.
- .tct is the template file. This file contains all of the codes and parameters for cruising and workup.
- .tcc is the codes and parameters file that is exported to the data logger
- .tce is the Windows CE file format for the field data file
- .tcd is a TCruise Document file. This is a finished cruising job that consists of the template with the field data.

## Updating TCruise Office

- From time to time it is recommended to update your TCruise Office Software. To do this go to [www.timbercruise.com](http://www.timbercruise.com) and go to the Download Center. Select the TCruise Desktop software (ignore the date) and **Save**. When it has finished downloading, **Open** the download and it will begin the installation procedure. Answer all questions. It is not necessary to uninstall a previous version or backup any of your TCruise files.

## Registering TCruise



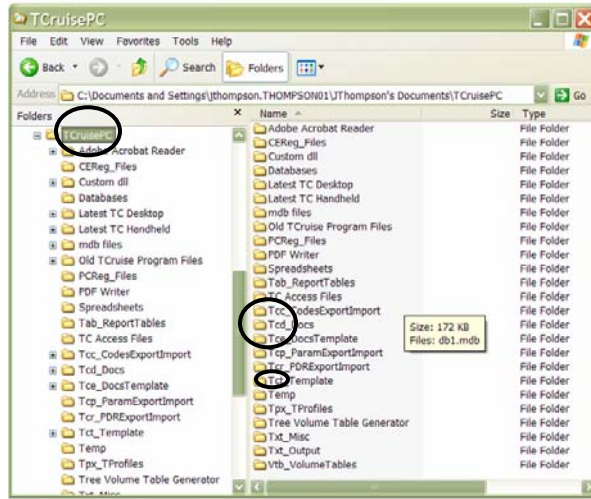
After you load TCruise, it will be necessary to Register each copy of the program you buy. When you open TCruise for the first time, it will ask you to Register Now or Later. If you select Later, then you have 30 days to register the program. If you select Register Now, TCruise will give you a serial number which you should write down and then call Tech Support to get the corresponding **Registration Number and Key Code**. Type those numbers in to register TCruise and all Extended features.

In order to import or export field data files, you must also go to File > Utilities > **Register Data Recorders**. You will be prompted in to enter a registration code that corresponds to the serial number from above. If you bought TCruiseCE, when you get your registration codes from Tech Support, you will receive one for the Handheld program as well.

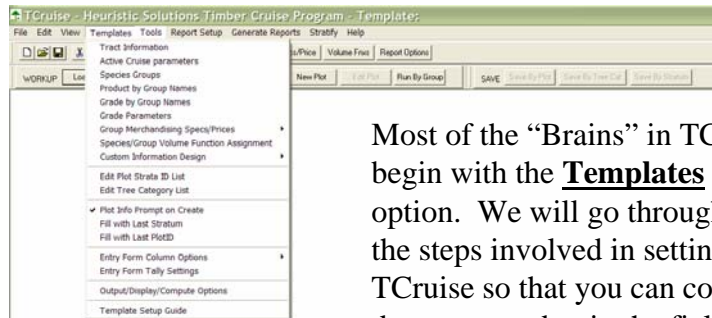
## Default TCruise File Folders

After you load TCruise and execute the program for the first time, most of the following file folders will automatically be created under the **My Documents\TCruisePC** Directory.

Note the **.Tcc**, **.Tcd**, **.Tce**, and **.Tct** folders. TCruise will automatically direct you to these folders when you open or save these files on the PC.



## Setting up TCruise



Most of the “Brains” in TCruise begin with the **Templates** menu option. We will go through each of the steps involved in setting up TCruise so that you can collect the data you need to in the field and calculate volumes and stumpage the way you need to back in the office.

## Step #1 – Tract Information

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

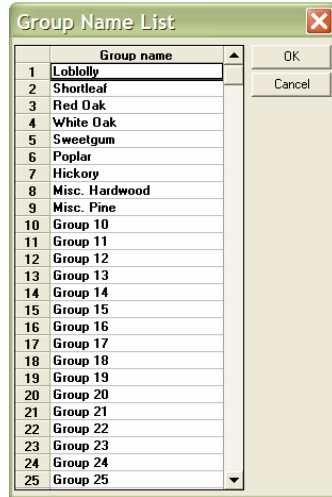
**Dbh measurement precision:** Set at 0.1 inch, 1 inch or 2 inches

**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.

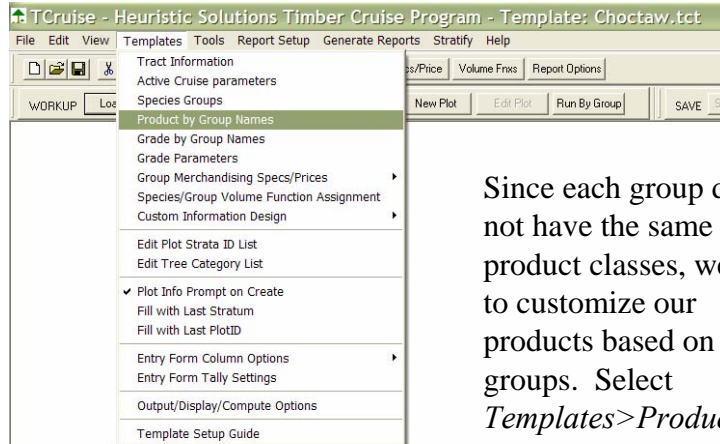
NOTE: Other parameters on this page will be discussed under Specialty Cruises.

### Step #3 – Species Groups



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



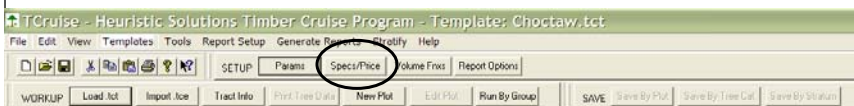
Since each group does not have the same product classes, we need to customize our products based on the groups. Select *Templates>Product by Group Name*.

## 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	Grosstie	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

Species Group Loblolly Timber Product Merchandizing Specifications

SPECIFICATION:	Pulpwood	Cheraw	Medium	Sawtimber	Cull
Number code	1	2	3	4	5
Alpha code	PW	CNS	MED	ST	CL
Compute volumes	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threshold dbh	6	10	12	14	NA
Pulpwood top(ob)	3	3	3	3	NA
Sawlog top(ob)	5	5	6	8	NA
Max end dia(ob)	24	30	30	40	NA
Log/bolt length	10	16	16	16	NA
Stump ht	0.5	0.5	0.5	0.5	NA
Wt/cubic vol (ob)	50.5	50.5	50.5	50.5	NA
Weight/cord	5450	5450	5450	5450	NA
Girard form class	78	78	78	78	NA
Min. useable fm	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 IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Height record top diameter (must be <= to pulpwood Min top diam (ob)) 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 50.5 Pulpwood in tops wt/cord 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 Hts or Hts. Do not specify Hts.

Calculate pulpwood in top for trees assigned to a Message or Behre volume function for non-grade trees. Record Hts or Hts. Do not specify Hts.

Minimum top pulpwood piece length 18

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).

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

Species Group Loblolly Timber Product Merchandizing Specifications

SPECIFICATION:	Pulpwood	Small	Medium	Sawtimber	Cull
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 type="checkbox"/>	<input type="checkbox"/>
Threshold dbh	4.8	7.6	8.6	15.6	NA
Pulpwood top(ob)	2	2	2	2	NA
Sawlog top(ob)	5	5	6	8	NA
Max end dia(ob)	25	30	30	35	NA
Log/bolt length	5.25	16	16	16	NA
Stump ht	0.5	0.5	0.5	0.5	NA
Wt/cubic vol (ob)	50.5	50.5	50.5	50.5	NA
Weight/cord	5450	5450	5450	5450	NA
Girard form class	80	80	80	80	NA
Min. useable fm	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 IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Height record top diameter (must be <= to pulpwood Min top diam (ob)) 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 50.5 Pulpwood in tops wt/cord 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 Hts or Hts. Do not specify Hts.

Calculate pulpwood in top for trees assigned to a Message or Behre volume function for non-grade trees. Record Hts or Hts. Do not specify Hts.

Minimum top pulpwood piece length 0

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).

**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:** Enable/Disables TCruise to calculate volumes for the associated product classes.

**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

Templates Menu

**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 Ht 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 ¼ log is selected in the above example, TCruise will only calculate volume for 20' and ignore the extra 3'.

**Wt/Cubic is 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, T-Cruise 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. T-Cruise 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 pulwood top diameter (ob).

SPECIFICATION	PRODUCT					OK
	Pulpwood	Small	Medium	Sawtimber	Cull	
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)	1	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"/> Sale PW
Stump ht.	0.5	0.5	0.5	0.5	NA	The Default FC and Sale PW fields are obsolete.
Wt/cubic vol (ob)	50.5	50.5	50.5	50.5	NA	
Weight/wood	5450	5450	5450	5450	NA	
Guard form class	00	00	00	00	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 IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NA	
Height record top diameter (must be <= to pulwood 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 pulwood heights for all species assigned to this group for all profiles.						
Other non-product specific settings:						
PW in tops weight/cubic vol.	50.5	Pulpwood in tops wt/wood	5450	Stump ht	0.5	Obsolete
Default pulwood in tops computation options OVERRIDE for group:						
<input type="checkbox"/> Enable override of default compute options						
<input type="checkbox"/> Calculate pulwood 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 pulwood in tops even though standing pulwood is not being calculated (pulwood product class is suppressed)			
<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulwood in top for trees assigned to a standard profile function for graded trees. The stripper top must be set the Sawlog Top (SW).			
<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for graded trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for graded trees. The stripper top must be set the Sawlog Top (SW).			
Minimum top pulwood piece length	0					

## Group Specifications

Templates Menu

**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/wood:** Set values for calculating topwood volumes.

**Default pulwood 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 pulwood piece length:** Minimum length that a topwood piece must be before the volume is included in volume report.

SPECIFICATION	PRODUCT					OK
	Pulpwood	Small	Medium	Sawtimber	Cull	
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)	1	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"/> Sale PW
Stump ht.	0.5	0.5	0.5	0.5	NA	The Default FC and Sale PW fields are obsolete.
Wt/cubic vol (ob)	50.5	50.5	50.5	50.5	NA	
Weight/wood	5450	5450	5450	5450	NA	
Guard form class	00	00	00	00	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 IB	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	NA	
Height record top diameter (must be <= to pulwood 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 pulwood heights for all species assigned to this group for all profiles.						
Other non-product specific settings:						
PW in tops weight/cubic vol.	50.5	Pulpwood in tops wt/wood	5450	Stump ht	0.5	Obsolete
Default pulwood in tops computation options OVERRIDE for group:						
<input type="checkbox"/> Enable override of default compute options						
<input type="checkbox"/> Calculate pulwood 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 pulwood in tops even though standing pulwood is not being calculated (pulwood product class is suppressed)			
<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for non-grade trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulwood in top for trees assigned to a standard profile function for graded trees. The stripper top must be set the Sawlog Top (SW).			
<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for graded trees. Record Hm or Hs. Do not specify Hp.			<input type="checkbox"/> Calculate pulwood in top for trees assigned to a Message or Bales volume function for graded trees. The stripper top must be set the Sawlog Top (SW).			
Minimum top pulwood piece length	0					

## Group Specifications

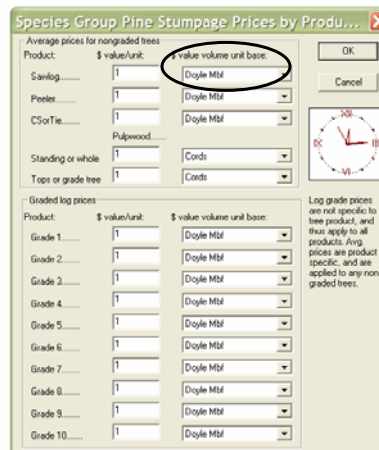


After you set up 1 of your Group Specs, you can copy those same specs to other groups by selecting *Templates>Group Merchandizing Specifications/Prices>Duplicate/Copy Merchandizing Specifications*. This is particularly helpful with hardwood species that have very similar merch specs.

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.

Species Code and Profile/Volume Function Association

Sp code	Species name	Primary profile/volume function	PN	Species group	Secondary profile/volume function	PN	SBak
1	LLOB	Loblolly	Natural Loblolly Pine (7)	7 Loblolly	Mesavage TAB 10.0% dbt (104) F	104	104
2	SHL	Shorthal	Natural Shorthal Pine (8)	8 Shorthal	Mesavage TAB 10.0% dbt (104) F	104	104
3	RO	Red Oak	All red oaks combined (82) FC	82 Red Oak	Mesavage TAB 7.5% dbt (103) F1	103	103
4	WO	White Oak	All white oaks combined (72) FC	72 White Oak	Mesavage TAB 7.5% dbt (103) F1	103	103
5	GUM	Sweetgum	Sweetgum (4)	4 Sweetgum	Mesavage TAB 5.0% dbt (102) F1	102	102
6	POP	Poplar	Yellow-poplar (52) FC	52 Poplar	Mesavage TAB 5.0% dbt (102) F1	102	102
7	HIC	Hickory	Upland Hickory (13)	13 Hickory	Mesavage TAB 7.5% dbt (103) F1	103	103
9	MHDW	Misc. Hardwood	Upland Mixed Hardwoods (25)	25 Misc. Hardwood	Mesavage TAB 5.0% dbt (102) F1	102	102
9	MPIN	Misc. Pine	All pines combined (28) FC	28 Misc. Pine	Mesavage TAB 10.0% dbt (104) F	104	104
10	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
11	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
12	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
13	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
14	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
15	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
16	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
17	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
18	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
19	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
20	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0

Default pulwood in tops computation options

Compute pulwood in tops even though standing pulwood is not being calculated (pulwood product class is suppressed). Grade tree top pw will not be computed unless this box is checked!!!

Calculate pulwood in top for trees assigned to a standard profile function for non-grade trees. Record Hn or Hs. Do not specify Hp.

Calculate pulwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).

Calculate pulwood in top for trees assigned to a Messague or Behre volume function for non-grade trees. Record Hn or Hs. Do not specify Hp.

Calculate pulwood in top for trees assigned to a Messague or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

SBak is for Messague, and Behre tables, and functions only.

## 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 merchandise 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	SBak
1	LLOB	Loblolly	Natural Loblolly Pine (7)	7 Loblolly	Mesavage TAB 10.0% dbt (104) F	104	104
2	SHL	Shorthal	Natural Shorthal Pine (8)	8 Shorthal	Mesavage TAB 10.0% dbt (104) F	104	104
3	RO	Red Oak	All red oaks combined (82) FC	82 Red Oak	Mesavage TAB 7.5% dbt (103) F1	103	103
4	WO	White Oak	All white oaks combined (72) FC	72 White Oak	Mesavage TAB 7.5% dbt (103) F1	103	103
5	GUM	Sweetgum	Sweetgum (4)	4 Sweetgum	Mesavage TAB 5.0% dbt (102) F1	102	102
6	POP	Poplar	Yellow-poplar (52) FC	52 Poplar	Mesavage TAB 5.0% dbt (102) F1	102	102
7	HIC	Hickory	Upland Hickory (13)	13 Hickory	Mesavage TAB 7.5% dbt (103) F1	103	103
9	MHDW	Misc. Hardwood	Upland Mixed Hardwoods (25)	25 Misc. Hardwood	Mesavage TAB 5.0% dbt (102) F1	102	102
9	MPIN	Misc. Pine	All pines combined (28) FC	28 Misc. Pine	Mesavage TAB 10.0% dbt (104) F	104	104
10	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
11	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
12	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
13	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
14	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
15	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
16	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
17	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
18	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
19	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0
20	TBA	Natural Loblolly Pine (7)	7 Loblolly	7 Loblolly	Not Assigned (0)	0	0

Default pulwood in tops computation options

Compute pulwood in tops even though standing pulwood is not being calculated (pulwood product class is suppressed). Grade tree top pw will not be computed unless this box is checked!!!

Calculate pulwood in top for trees assigned to a standard profile function for non-grade trees. Record Hn or Hs. Do not specify Hp.

Calculate pulwood in top for trees assigned to a standard profile function for graded trees. The stopper top must be set the Sawlog Top (SW).

Calculate pulwood in top for trees assigned to a Messague or Behre volume function for non-grade trees. Record Hn or Hs. Do not specify Hp.

Calculate pulwood in top for trees assigned to a Messague or Behre volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

SBak is for Messague, and Behre tables, and functions only.

## 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 100 such profiles built-in), Messavage-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 Messavage-Girard to calculate the volumes.

Sp code	Species name	Primary profile/volume function	Profile	Species group	Secondary profile/volume function	PM	32/34
1	LDB	Natural Lobolly Pine (7)	7	Lobolly	Message TAB 10.0% dbh (104)	120	11.50
2	SHL	Natural Shortleaf Pine (8)	8	Shortleaf	Message TAB 7.5% dbh (103)	104	
3	RD	All red oaks combined (22)FC	22	Red Oak	Message TAB 7.5% dbh (103)F1	103	
4	WD	All white oaks combined (72)FC	72	White Oak	Message TAB 7.5% dbh (103)F1	103	
5	GUM	Sweetgum (4)	4	Sweetgum	Message TAB 5.0% dbh (102)F1	102	
6	POP	Yellow poplar (52)FC	52	Poplar	Message TAB 5.0% dbh (102)F1	102	
7	HIC	Upland Hickory (13)	13	Hickory	Message TAB 7.5% dbh (103)F1	103	
8	MHDW	Misc. Hardwood	25	Misc. Hardwood	Message TAB 5.0% dbh (102)F1	102	
9	MFIN	All pines combined (20)FC	20	Misc. Pine	Message TAB 10.0% dbh (104)	104	
10	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
11	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
12	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
13	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
14	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
15	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
16	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
17	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
18	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
19	TBA	Natural Lobolly Pine (7)	7	Lobolly	Not Assigned (0)	0	
20	TBA	Natural Lobolly Pine (7)	7	Lobolly	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 Hs. Do not specify Hp.

Calculate pulpwood in top for trees assigned to a Messavage or Bihre volume 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 (TW).

Calculate pulpwood in top for trees assigned to a Messavage or Bihre volume function for graded trees. The stopper top must be set the Sawlog Top (TW).

## 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

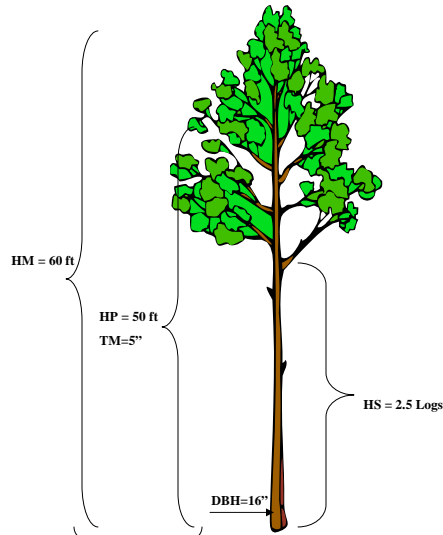
**HM:** Height to Record top (i.e. 0"-Total Height) Note: If only HM is input for the tree then TCruise will use the profile function to calculate the cubic foot volume for the tree. It will also calculate the amount of sawtimber to the specified sawtimber top and consider the rest of the stem above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



Use one method or the other, but not both for the same tree

## 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.}

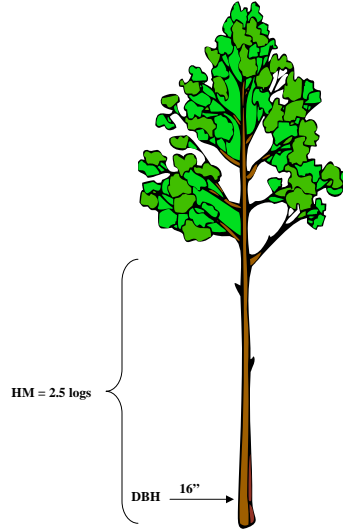
**Columns needed for input using a Form Class cruise:** SPC, No, DBH, HM, PRD

**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

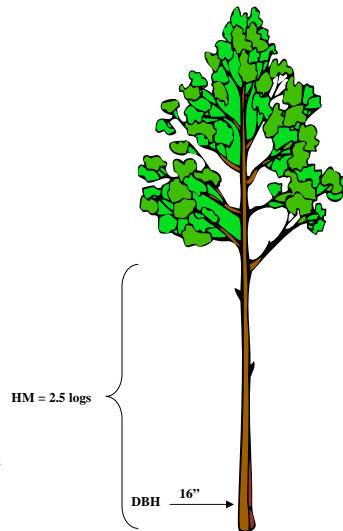
**DBH:** Diameter at Breast Height (4.5') in inches

**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.**



## Assigning Profile/Volume Calculation Functions

Information regarding the 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. 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.

Sp code	Species name	Primary profile/volume function	PH	Species group	Secondary profile/volume function	FC	Bark
1	Loblolly	Natural Loblolly Pine (7)	7	Loblolly	Mesavage TAB 8H min dbt (120)	120	11.00
2	Shortleaf	Natural Shortleaf Pine (8)	8	Shortleaf	Mesavage TAB 8H min dbt (120)	120	11.00
3	Red Oak	All red oaks combined (82) FC	82	Red Oak	Mesavage TAB 7.5% dbt (103) F1	103	
4	White Oak	All white oaks combined (72) FC	72	White Oak	Mesavage TAB 7.5% dbt (103) F1	103	
5	GUM	Sweetgum (4)	4	Sweetgum	Mesavage TAB 5.0% dbt (102) F1	102	
6	POP	Yellow poplar (52) FC	52	Poplar	Mesavage TAB 5.0% dbt (102) F1	102	
7	HIC	Upland Hickory (13)	13	Hickory	Mesavage TAB 7.5% dbt (103) F1	103	
8	MHW	Misc. Hardwood	25	Misc. Hardwood	Mesavage TAB 5.0% dbt (102) F1	102	
9	MPIN	Misc. Pine	28	Misc. Pine	Mesavage TAB 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 Behe 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 Behe volume function for graded trees. The stopper top must be set the Sawlog Top (SW).

Minimum top pulpwood piece length: 0



Technical Support: (850) 385-3667

## Custom Volume Calculators

TCruise - Heuristic Solutions Timber Cruise Program - Template:

File Edit View Templates Tools Report Setup Generate Reports Stratfy Help

Tools > Equation Managers > Edit Volume Tables

Volume table ranges - English setup

Title to edit: ZeroVolume007

New title: Pine Table

Height (ftm) column: Form class column

FC measure: Outside bark

Starting dbh: 6 Ending dbh: 40 Dbh increment: 2

Starting Hm: 16 Ending Hm: 84 Hm increment: 8

Starting FC: 78 Ending FC: 80 FC increment: 1

Valid volume table columns:

- Pulpwood (Pw) cubic volume ob (Cvob) to the pw top
- Pulpwood (Pw) cubic volume ib (Cvb) to the pw top
- Pulpwood (Pw) green weight ob (Gwob) to the pw top
- Sawlog (S) cubic volume ob (Cvob) to the sl top
- Sawlog (S) cubic volume ib (Cvb) to the sl top
- Sawlog (S) green weight ob (Gwob) to the sl top
- Int-1/8 bfv to the sl top
- Doyle bfv to the sl top
- Scribner bfv to the sl top

Interpolate into table. This will increase computing time.

Set short tree volumes to volume of minimum height class. Otherwise set the volume equal to 0.

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 1/2 log increments

# Misc. Computation Options

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.

# Step #9 - Species Grade

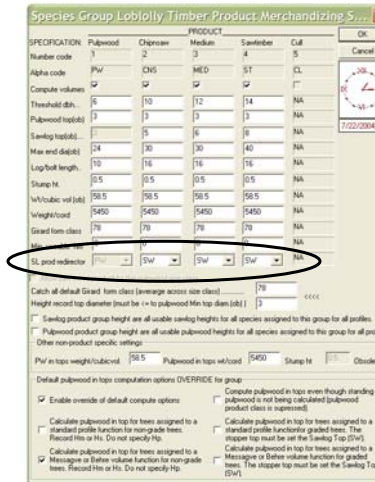
In a similar manner to defining products, we can also define up to 10 different grades for each Species Group by selecting *Templates>Grade by Group Names*. This box will change each graded product as desired. The New code is what will show up on the handheld.

Default and by species group grade names and codes							
	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	Chipsaw	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

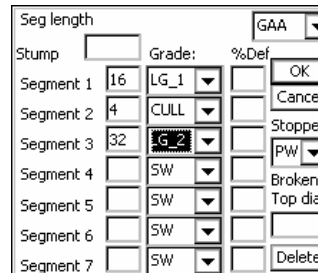
TCruise gives you 2 options on how you want to use the Species Grade dialogue. If you want to actually GRADE each log segment of certain trees (i.e. – 3 face clear, 2 face clear, Prime, #1, etc.) and have that volume reported by grade under the appropriate product class that corresponds with the dbh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



# 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.

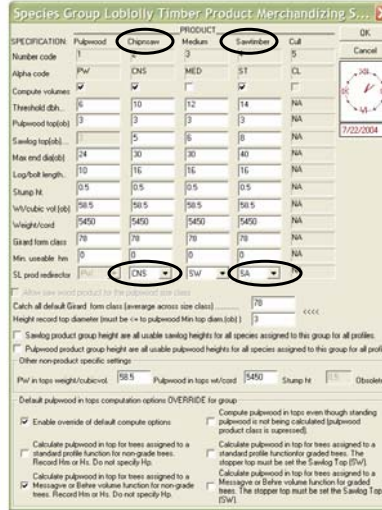
With a form class cruise, the Stopper should be set to SW. TCruise is assuming that the top of the last log is where sawtimber ends and topwood starts if you are calculating it. With a profile function cruise, Stopper top is extremely important because the Stopper tells the profile builder where the 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.



## Species Grade

### Option #2

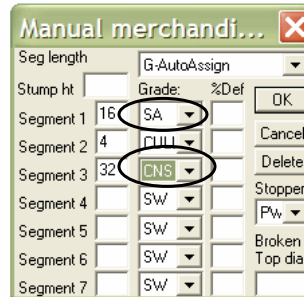
The other way to use the species Grade dialogue is to use it as a means of MULTI-SORTING one stem into unique product segments. If you graded using Grade Auto-Assign (GAA), TCruise is still going to sum and assign the volumes of all graded segments in one stem to one product category based on dbh. But 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 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 Chipwood 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 Chipwood 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.



## 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 ChipSaw product and all of the graded volume is reported under Sawtimber product.

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

Row	Cruise Variable	Product			Total
		Pulpwood	ChipSaw	Medium Sawtimber	
1	NumberOfTrees..:	0.0	10.0	0.0	20.0
2	BaseArea.....:	0.0	5.5	0.0	27.3
3	Mean.tree.dbh.:	0.0	10.0	0.0	15.8
6	PulpWood(Tons):	0.0	2.8	0.0	2.8
10	SawWood(Tons):	0.0	2.3	0.0	23.7
13	Doyle.....:	0.0	150.6	0.0	3176.3
17	Total(Tons)::	0.0	2.3	0.0	26.5

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

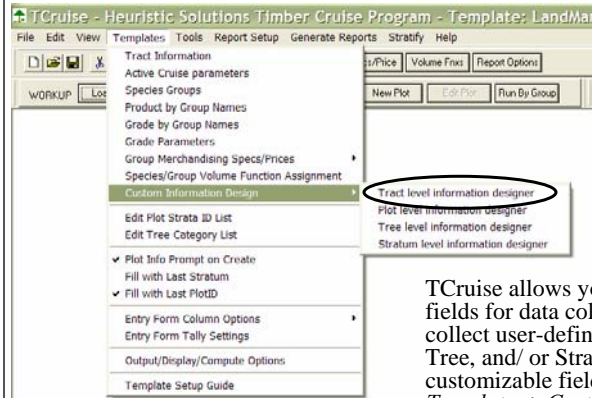
UN	Sawlogs					Total	
	Pulpwood	Ungraded	Resale	ChipSaw	Grade3		Grade4
TN	2.8	0.0	9.8	14.2	0.0	0.0	26.5
DV	0.0	0.0	1407.0	1769.2	0.0	0.0	3176.3

On the **Grade Report**, however, the ChipSaw product volume is added to the ChipSaw 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.

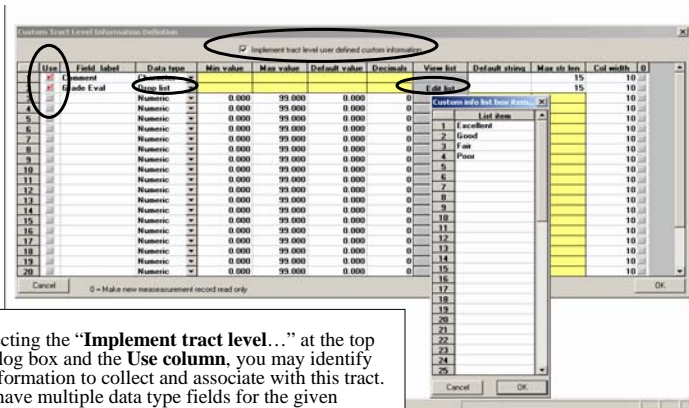
## Step # 10 – Custom Information Design



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

Tract Information

Acres: 150 Date: 12/17/02

Name: H.C. Viewn Tract

Created: Tim Moore

Location: Dodge County

Owner: Fred Lange

Other Info: Enter weather tract

Enter user defined tract data

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

Custom Tract Select Information

Item	Data Item	Data Value
1	Comment	High Volume
2	GradeE val	Good
3	Loggers/Cont	Low
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

Cancel OK

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

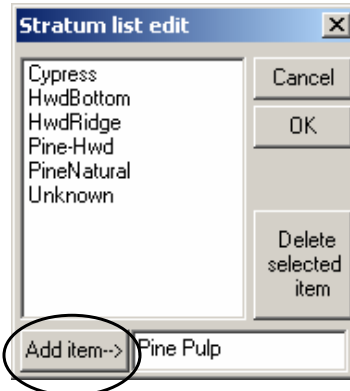
## Step #11 – Plot Strata ID List

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*

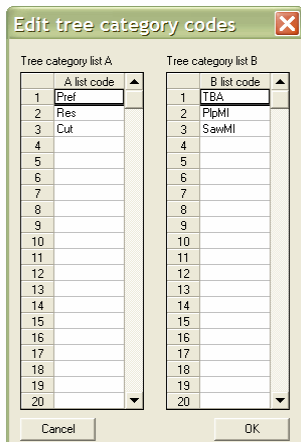
To add a strata, simply type in the name next to the Add item button and then press the **Add item** button and your strata will be added to the list.

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.



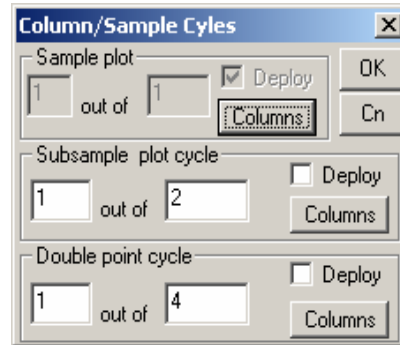
## Step #12 - Tree Category List



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.

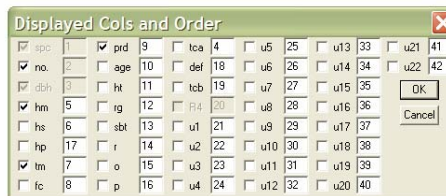
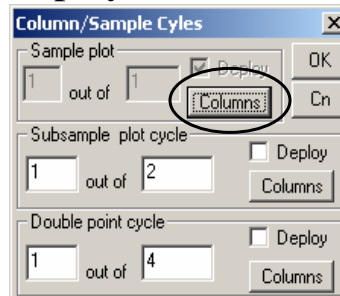


## Customizing the Display Columns

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 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

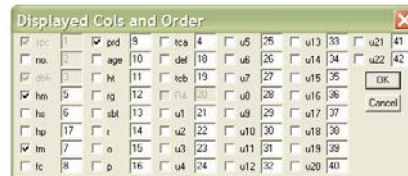
dbh – diameter at breast height

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

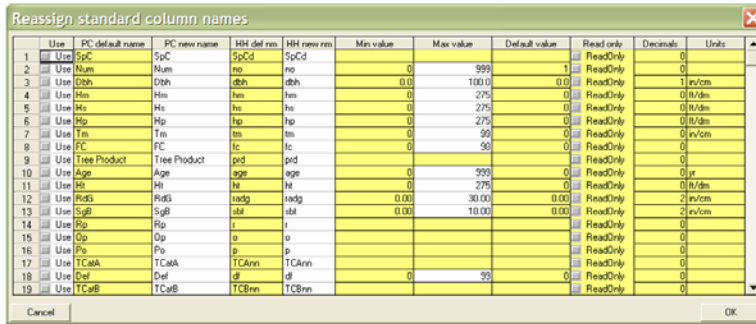
The order of the columns can easily be changed on the PC by changing the number that is next to the column heading. In the example below, the **tca** column is being swapped with the **hp** column.



## 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.



## 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	Hs	Hp	Tm	TCaA	PH	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	Hs	Hp	Tm	TCaA	PH	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.

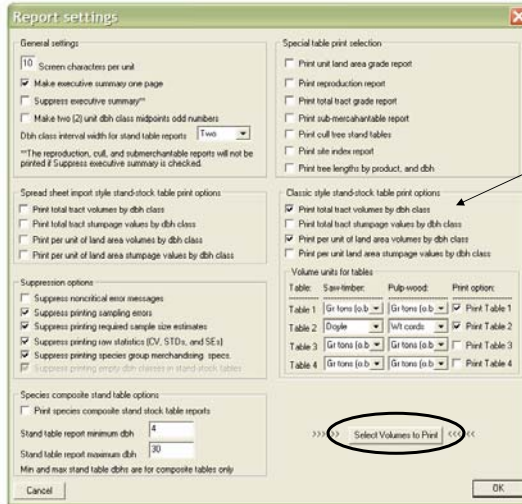
If you want a **spreadsheet style stock-stand table**, set that up here.

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



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

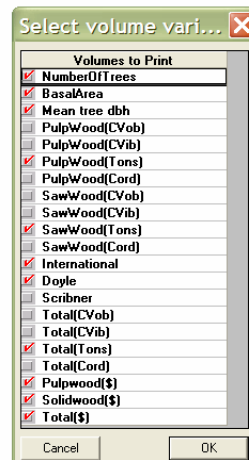
If you want a **Classic Style Stand-Stock Table** check the appropriate boxes here. You also have options for the volume units for sawtimber and pulpwood products in combinations of up to four different reports. In this example table 1 will have Sawtimber and Pulpwood in Tons, while Table 2 will have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

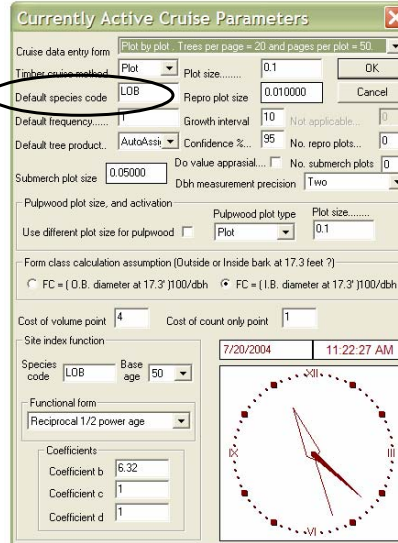
Notice that there are a large number of volume variables you may elect to have printed. Simply select which ones you want by left-clicking the check on the left. For those variables you do not wish to have printed, simply left-click off the check.

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



## Step #15 – Enter the Default Species Code

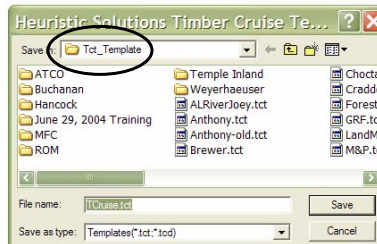
Now that your Species Groups and Species Codes have been established, you need to go back to the Active Cruise Parameters Screen (select Params) and enter your Default Species Code. This needs to match one of the codes you entered on the Volume Fnxs screen.



## 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.



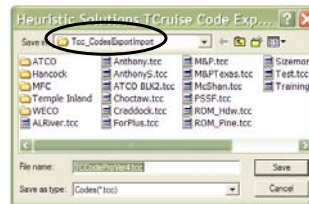
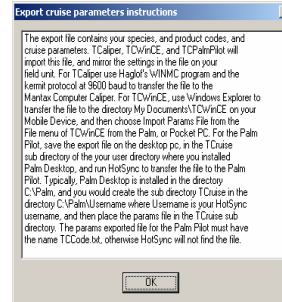
**CAUTION:** If you do not enter an extension (.tct), T-Cruise will have no way of distinguishing the file type in this case.

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

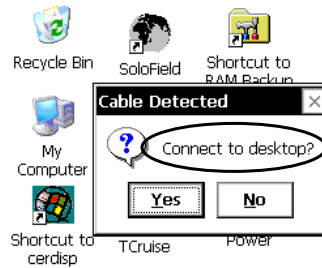
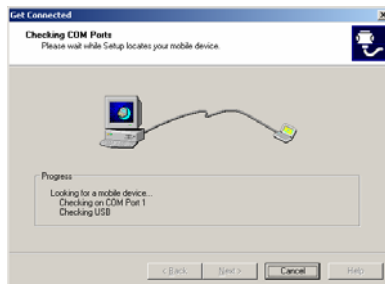


## Step #18 - Syncing with Your PC

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 CD, or download it from the internet (<http://www.microsoft.com/windowsmobile/downloads/as-eula37.msp>).

Once you install the program, it will look for your device as shown below. When you try to connect a Ranger you will be prompted to **Connect to Desktop?** Answer Yes. With the Recon or iPAQ, it should connect automatically. Once you establish the connection the first time, connecting to your computer hereafter should be relatively simple.

If you have problems, look at the next few slides.



## 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 CD, or download and install it from the internet (<http://www.microsoft.com/windowsmobile/downloads/activesync42.mspx>).

## 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.



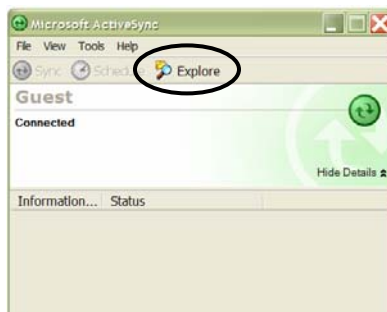
← Data Transfer Port

## 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**.

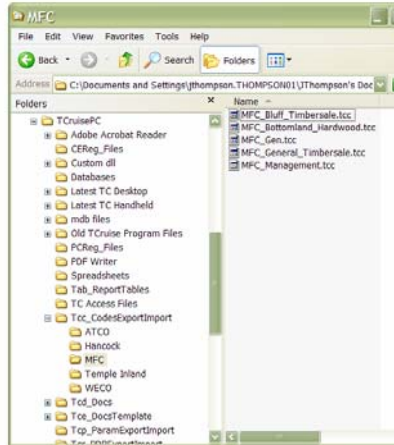


Depending upon your connection type, make sure that the **Allow USB connection** boxes are selected. Then select **Connect**.

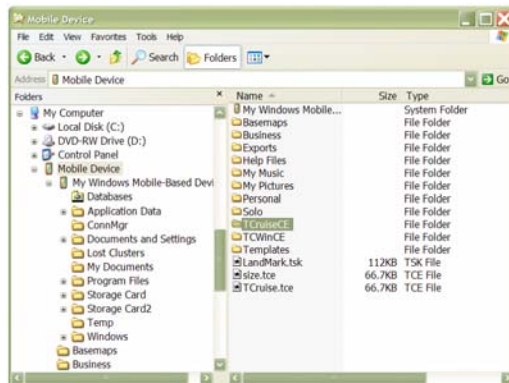
## Step # 19 - Transferring the .tcc file to Handheld

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.