



Research Note No. 22 (revised)

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## CACTOS (version 4.2): Batch Command File Generator

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### Overview

A new command level has been added to CACTOS and a procedure has been added to facilitate the generation of batch command files. The command file, used in the batch mode operation, is a set of commands that would be entered from the keyboard in interactive mode. However, creating a command file is not as easy as it appears, it can be difficult to keep track of the items CACTOS will be asking for during the run. So we have developed a Command File Generator that is as easy to use as interactive mode itself.

### New command level

There is now a new command level in CACTOS that is like that of version 3 of STAG. The runstream below shows how this works. This level is referred to as the STARTUP PROGRAM and allows access to the three modes of operation of the simulator as well as a branch to the operating system and the initialization routine. An important thing to note is that the initialization routine (now called configuration) is not accessed when the simulation is started, but rather has its own process where the configuration can be set and stored in a file (using the new sf command) that is used whenever CACTOS is started. There is also a new configuration command, sk, that allows the title pages to be skipped the next time the program is started. The most important effect of this new setup is that the first line of your command files (indicating if you want to enter initialization mode), as well as any configuration commands are no longer necessary and must be removed for proper operation of batch mode.

Once you get to the actual simulation process, you will see some different prompts for the different modes of operation:

	<u>interactive</u>	<u>batch</u>	<u>command file generator</u>
main menu:	go:	go#	go>
harvest menu:	cutgo:	cutgo#	cutgo>

### The command file generator

The command file generator is entered from the new command level of CACTOS, just like interactive and batch modes. When you start the generator, you are prompted for the name of a command file as well as a five character prescription code and a prescription description. Also note that you are not prompted for a report or yield file, these files are automatically created as scratch files.

After each command (except as noted below) you are asked if you want to place the commands in the command file, if you say yes, then the commands are entered and you return to the go> prompt. If you say no, then the stand description is restored to its previous condition. To look at the command file at any point in the simulation, enter >> at the go> prompt. This command is not routed to the command file. The only other command available to you in this

mode not routed to the command file is the `yd` command, used for looking at the yield summary on the screen. This command behaves strangely in batch mode and is no longer supported in that mode.

### Changes to Batch Mode

In the process of making this generator, we "turned off" some of the interactive commands that are not used in batch mode. Internal saves and restores (`sv` and `rt`) as well as the omit stand (`os`) command are not available in batch mode or while generating command files. The `yd` command is available in command file generation mode, but cannot be routed to the command file.

The following runstream shows how to use the new command file generator of CACTOS and the changes that have taken place in the appearance of the program header sections.

```

                                WELCOME TO

    CCCCC   AAAA   CCCCC   TTTTTTTT   OOOO   SSSSS
CCCCCCCC   AA  AA   CCCCCC   TTTTTTTT   OOOOOO   SS  SS
CC         AA  AA   CC         TT         OO  OO   SS
CC         AAAAAAA   CC         TT         OO  OO   SSSSS
CC         AA  AA   CC         TT         OO  OO   SS
CCCCCCCC   AA  AA   CCCCCC   TT         OOOOOO   SS  SS
CCCCC     AA  AA   CCCCC   TT         OOOO   SSSSS

                                Version 4.2

                                The California Conifer Timber Output Simulator

                                Copyright 1985 - 1988 The Regents of the University of California
enter "return" to continue <return>

                                The California Conifer Timber Output Simulator

                                by

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                                A Product of the Northern California Forest Yield Cooperative

                                American Forest Products           The Hearst Corp.
                                Beatty and Associates             Louisiana-Pacific Corp. (Elk Creek)
                                Champion International Corp.      Louisiana-Pacific Corp. (Feather Falls)
                                Crane Mills                       Fiberboard Corp.
                                Roseburg (Diamond)              Michigan-California Lumber Co.
                                Fruit Growers Supply             Sierra Pacific Industries
                                U.S.D.A. Forest Service (R5)     CA Dept. of Forestry & Fire Protection

                                Research conducted under AES projects 3815-ms and 3679-ms.

enter "return" to continue <return>

```

*This part is the same.*

STARTUP PROGRAM

Type "pc" to get a list of commands

cactus:pc

MAIN COMMANDS

- pc - print these commands
- cf - enter configuration routine
- go - enter interactive mode ("go:" prompt)
- ba - enter batch mode
- cm - build command file for batch mode
- br - branch to operating system
- ex - exit program

cactus:cf

INITIALIZATION ROUTINE

Type "pc" to get a list of available commands.

- CURRENT CONFIGURATION STATUS -

- sk - Title page skip.....OFF
- cm - Cubic minimum diameter..... 0.0"
- ct - Cubic merch top..... 6.0"
- bm - Board foot minimum diameter..... 8.0"
- bt - Board foot merch top..... 6.0"
- yf - Yield flag.....ON
- fl - Print flag.....ON
- iq - Inhibit record quintupling.....OFF
- sp - Species grouping code.....1

initgo: pc

INITIALIZATION COMMANDS

- pc - print commands
- ps - print current status
- cm - set minimum cubic foot DBH
- ct - set cubic merchantable top
- bm - set minimum board foot DBH
- bt - set board foot merchantable top
- sc - list species groups and current group indicator

Here we see the difference, this is the new startup menu.

Let's change the configuration to skip the title pages on program startup

cf enters the configuration routine

We automatically get a status report

Print commands available in configuration mode.

```

sp - set species groups
su - list user defined species groups
fl - set print flag
yf - set yield flag
cl - set user calibration scheme
iq - set record quintupling option
sf - save current configuration
sk - set title page skip
br - branch to operating system
ex - return to main program

initgo:sk

Title page skip is currently 0 enter new (0=print,1=skip):1

initgo:sf

Current configuration saved in:CACTOS.CNF

initgo:ex

Exiting initialization routine

cactos:ex

Normal termination of CACTOS

```

*sk sets title page skip*

*sf saves the current configuration in a file for use later*

*ex takes you back to the startup menu*

The next runstream shows more detail about how the command file generator works. Before proceeding, create the filenames file, demo.fn, with the single entry "demo.sd" (see User's Guide, page 31 (revised)).

```

CACTOS version 4.2
(c) Copyright 1985 - 1988 The Regents of the University of California
Release number: #####

STARTUP PROGRAM
-----
Type "pc" to get a list of commands

```

*Note new title*

cactos:pc

MAIN COMMANDS

-----

pc - print these commands  
cf - enter configuration routine  
go - enter interactive mode ("go:" prompt)  
ba - enter batch mode  
cm - build command file for batch mode  
br - branch to operating system  
ex - exit program

cactos:go

Open the stand description file  
Enter a file name here:demo.sd

Open the yield file  
Enter a file name here:>demo.yd

Open the report file  
Enter a file name here:>demo.rp

MAIN PROGRAM

-----

Type "pc" to get a list of available commands  
Current output file is 6 (the screen)

go:gr

Begin Growth Routine

MORTALITY ON

Enter the number of 5 yr. growth cycles desired  
Note: a "-" (minus) prefix shuts off mortality for all cycles entered.  
Enter number of cycles here:-1

MORTALITY OFF

Do you want either individual tree growth detail  
or summary info printed?(y=yes):n

go:pf

Print stand profile

How to specify species to be graphed ?  
0 - All species together  
1 - By one or more species  
2 - By one or more species groups

Type go to get  
to interactive  
CACTOS

Use ">" for  
automatic  
overwriting of

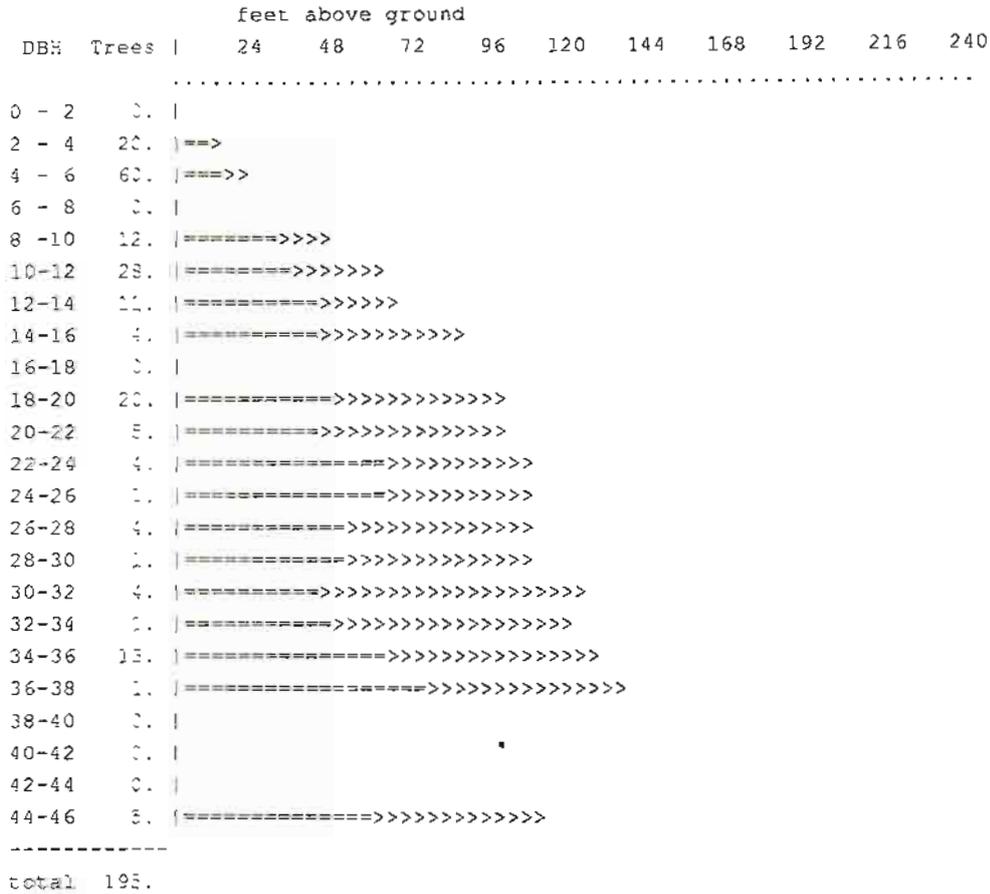
Notice that we didn't  
go into initialization.

Enter 0, 1, or 2 : 0

Stand Profile

elapsed time = 5.00 yrs

All species combined



Do you want this graph placed in the report file? (y=yes):y

Table saved in report file.

go:ex

Yield summary saved in demo.yd  
Report summary saved in demo.rp

cactos:cm

Open the command file  
Enter a file name here:>demo.cm

Open the stand description file  
Enter a file name here:>demo.sd

*Now we will create  
a command file of the  
previous interactive run*

Enter 5 character prescription code: RX1

Enter a prescription description...

First Prescription

MAIN PROGRAM

-----

Type "pc" to get a list of available commands  
Current output file is 6 (the screen)

go>gr

Begin Growth Routine

MORTALITY ON

Enter the number of 5 yr. growth cycles desired

Note: a "-" (minus) prefix shuts off mortality for all cycles entered.  
Enter number of cycles here: -1

MORTALITY OFF

Do you want either individual tree growth detail  
or summary info printed? (y=yes) : n

Do you want this entered into the command file: y

Commands entered into command file

go>pf

Print stand profile

How to specify species to be graphed ?

- 0 - All species together
- 1 - By one or more species
- 2 - By one or more species groups

Enter 0, 1, or 2 : 0

Root name will be constructed by combining sd and prescription (e.g., demo\_rx1.yc from demo.sd).  
Caution!! If more than 8 characters are created, only the first 8 are kept!

Notice the difference in prompts!

If we had said no it would have restored conditions to that previous to the current command

Stand Profile  
 elapsed time = 5.00 yrs  
 All species combined

DBH	Trees	feet above ground																		
		24	48	72	96	120	144	168	192	216	240									
0 - 2	2.																			
2 - 4	20.	==>																		
4 - 6	60.	====>>																		
6 - 8	2.																			
8 -10	12.	=====>>>>																		
10-12	23.	=====>>>>>>																		
12-14	11.	=====>>>>>>																		
14-16	4.	=====>>>>>>>>>>																		
16-18	2.																			
18-20	20.	=====>>>>>>>>>>>>																		
20-22	3.	=====>>>>>>>>>>>>																		
22-24	4.	=====>>>>>>>>>>>>																		
24-26	1.	=====>>>>>>>>>>>>																		
26-28	4.	=====>>>>>>>>>>>>																		
28-30	1.	=====>>>>>>>>>>>>																		
30-32	4.	=====>>>>>>>>>>>>>>>>																		
32-34	1.	=====>>>>>>>>>>>>>>>>																		
34-36	13.	=====>>>>>>>>>>>>>>>>																		
36-38	1.	=====>>>>>>>>>>>>>>>>																		
total		195.																		

do you want this graph placed in the report file? (y=yes):y

Table saved in report file.

Do you want this entered into the command file:y

Commands entered into command file

```
go>>>
  1:RX_#1 First Prescription
  2:gr
  3: -1
  4:n
  5:pf
  6:0
  7:y
```

go>ex

cactos:ba

WELCOME TO BATCH MODE

Type >> to get a listing of the command file thus far.

Enter batch mode.

```
Open the batch filenames file
Enter a file name here:demo.fn
```

```
Open the batch commands file
Enter a file name here:demo.cm
```

Please indicate the output files to be produced:

```
Yield file ? (y=yes):y
Report file ? (y=yes):y
Tree list file ? (y=yes):y
```

Where do you want normal screen output?

- 0 - Print output on screen (can slow process considerably)
- 1 - Print output to scratch file, i.e., throw it away
- 2 - Print output in a file

Enter here:2

```
Open the screen output file
Enter a file name here:>demo.scr
```

BATCH CYCLE STARTED

```
Processing file number 1
Stand description # 1 of file: demo.sd
```

```
Processing file number 1
Stand description # 2 of file: demo.sd
```

```
Processing file number 1
Stand description # 3 of file: demo.sd
```

```
Processing file number 1
Stand description # 4 of file: demo.sa
```

```
Processing file number 1
Stand description # 5 of file: demo.sd
```

```
Processing file number 1
Stand description # 6 of file: demo.sd
```

```
Processing file number 1
Stand description # 7 of file: demo.sd
```

```
Processing file number 1
Stand description # 8 of file: demo.sd
```

cactos:ex

Normal termination of CACTOS

*Make sure you have space on the disk before choosing option 2.*

The screen output file from batch mode will show a prompt like "go#" instead of "go:", which is used in interactive CACTOS. This aids in determining where printed output came from.