

## Chapter 104

# The Procedure Window

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### Introduction

This chapter discusses the operation of the **NCSS Procedure Window**, one of the four main windows of the **NCSS** statistical analysis system. The other three windows are the *Data Window*, the *Output Window*, and the *Procedure Navigator Window*. These are described in other chapters. Each analysis or graphics procedure in **NCSS** (e.g. Descriptive Statistics, Two-Sample T-Test, Regression, Scatterplots, etc.) has its own Procedure Window, which contains all the settings, options, and parameters required to run the analysis. These options are separated into groups called *panels* or *tabs*. A particular panel is viewed by pressing the corresponding tab that appears at the left side of the window.

At most six procedure windows can be opened at a time. You can widen the window to increase the size of the immediate help window by dragging the corners of the window.

The Procedure Window is comprised of five main items: the *Options Tabs*, the *Run Button*, the *Help Pane*, the *Menu*, and the *Toolbar*. Each of these components will be described in the sections that follow.

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### Procedure Template Files

The values of all options available for a procedure are referred to as a *template*. A template may be stored for future use in a *template file*. By creating and saving template files (often referred to as *templates*), you can tailor each procedure to your own specific needs. Each time you use a procedure, you simply load your template and run the analysis you have preset. You do not have to set all the options every time. You can save and load template files anywhere on your computer or network.

Template files have the extension *\*.t[Procedure Number]*, where *[Procedure Number]* is replaced by the number of the procedure (e.g. *\*.t157* is the extension for all Multiple Regression procedure templates). A complete list of all procedures by number is given at the end of this chapter. Each procedure's name and number is displayed near the bottom left of each procedure window when *Procedure Info* is selected to be shown. To display procedure info, click *View > Procedure Info* in the Procedure Window menu.

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### Default Template

Whenever you run or close a procedure, the current settings are automatically saved in a default template file. This template file is automatically loaded when the procedure is next opened. This allows you to continue using the template without resetting all the options.

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## Options Tabs

Your settings and selections that control a procedure are entered on the *Options Tabs*. The panel consists of several types of windows objects such as text boxes, check boxes, list boxes, and buttons. These control the variables used in an analysis or graph, how the analysis is performed, and which reports will be generated. Not all options are always required. Use the *Guide Me* panel in the lower right corner of the window to have the program show you which options are required by the procedure.

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## Entering Text

When text (either numeric or letters) is needed for a particular option, you will be allowed to type text in the box. Many of these text boxes also have a pull-down button on the right. Pressing this button will allow you to select an option from a list of typical values, rather than type in the value.

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## Selecting from a List

Some options require you to select from a list. In this case, a dropdown list will allow you to choose from the selections available.

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## Selecting One or More Variables

Variables in the Procedure Window correspond to columns in the dataset. When a procedure option requires one or more variable names, you can type the names directly into the box or click on the button to the right to bring up the Column Selection window. You can also bring up the Column Selection window by double-clicking inside the box. The Column Selection window allows you to select one or more columns from those in the current dataset.

When selecting multiple columns, you can use the *Shift* key to select a list of contiguous variables or use the *Ctrl* key to select disjoint (non-contiguous) variables.

At times, it may be more convenient to store the column numbers rather than the column names or to expand or collapse the list of columns selected. Use the *Long: List All Columns*, *Short: Collapse Adjoining Columns*, *Return Column Names*, and *Return Column Numbers* options in the *Result Style* dropdown to indicate how you want the columns to appear when written back to the Procedure Window.

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## Run Button

Click on the green *Run Button* located in the upper-left portion of the window to run the analysis or graphics procedure and obtain a report. While the procedure is running the green Run Button will change to a red *Abort Run* button. If the procedure is taking too long or you want to interrupt the calculations, click on the red button to immediately terminate the calculations. While a procedure is running, look for progress information in the Help Pane on the right.

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## Help Pane

The Help Pane is comprised of the Help Center, which contains links to useful help resources, and the Option Info display box, which displays information as you mouse over each input option.

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### Help Center

Click on the *Help Center* heading to expand or collapse the help options inside. The help center contains various links to procedure-specific help topics and examples as well as links to general training videos and documentation. It also contains an option to help you fill out the procedure input options by sequentially highlighting the primary options in the procedure. This is sometimes referred to as *Guide Me*.

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### Option Info

As you mouse over or set focus on each option on the Procedure Window, the *Option Info* box in the Help Pane on the right will be updated with important information about that option. Use this information to help you decide on how to complete each option. Look for option recommendations and descriptions of possible choices. While a procedure is running, look for progress information in the option info box.

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## Menus

We will now discuss the various options that appear in the Procedure Window menus.

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### File Menu

The File Menu is used for initializing, loading, and saving templates. Each set of options for a procedure, called a template, may be saved for future use. In this way, you do not have to set the options every time you use a procedure. Instead, you set the options once, save them as a template, and re-use the template whenever you re-use the procedure. You can save and load template files anywhere on your computer or network.

- **New Template (Reset)**  
This menu item resets all options to their default values.
- **Open Template**  
This menu item opens a file selection dialog from which you can select a template to open from anywhere on your computer.
- **Recent**  
This menu item provides a list of recently-saved and recently-opened template files. Click on any file in the list to open it.
- **Open Example Template**  
This menu item opens a window from which you can select from the available example templates for that procedure. This is particularly useful when following tutorials in the procedure documentation.
- **Save Template As**  
This menu item opens a window with which you can name and save the current procedure settings as a template.

## The Procedure Window

- **Autosave Procedure Settings**  
Selecting this option causes the program to automatically save a procedure settings template each time a procedure is run. The name and location of the saved template is listed in the Procedure Input Settings Report at the end of the output (if requested).
- **System Options**  
This menu item brings up the System Options window to set various system options.
- **Close This Procedure**  
This menu item closes this procedure window. It does not terminate the NCSS system.
- **Exit NCSS**  
This option terminates the NCSS system. If you have unsaved data or report galleries, you will be prompted to save them before the program closes.

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## Run Menu

The Run Procedure menu item runs the analysis, displaying the output in the Output document of the word processor. After you have set all options to their appropriate values, select this option to perform the analysis. The procedure may alternatively be run by pressing the *F9* function key or by pressing the green Run Button in the upper-left portion of the screen. While a procedure is running, look for progress information in the Help Pane on the right.

While the procedure is running this menu item will change to Abort and the green Run Button will change to a red *Abort Run* button. If the procedure is taking too long or you want to interrupt the calculations, click on the red button or select *Abort* from the *Run* menu to immediately terminate the calculations.

- **Run Procedure**  
Click this option to run the analysis.
- **Create Page Breaks During Procedure Run**  
Check this option to create page breaks at the end of each page of the report. This aids in formatting the report for printing.
- **Add the Procedure Input Settings to the Report**  
Use this option to indicate whether to display a section at the end of the report documenting the procedure settings that were used to generate the report. This settings report will be displayed each time a procedure is run.

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## View Menu

The View Menu controls what objects are displayed on the Procedure Window. You can use this message to show or hide the toolbar and show or hide procedure info that contains procedure names and numbers and option numbers. This procedure information is particularly useful when writing macros.

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## Analysis and Graphics Menus

These menus load the corresponding procedure windows.

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## Tools Menu

From this menu you can load various statistical calculators, data procedures, and the macro command center window. You can also play the active macro from this menu.

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## Window Menu

This menu lets you transfer to one of the other **NCSS** windows such as the Output window or one of the currently open procedure windows.

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## Help Menu

From this menu you can launch the **NCSS** Help System and view documentation, tutorials, and references. From this menu you can also view licensing information.

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## Toolbar

The *Toolbar* is provided for single-click access to the most commonly used menu options. You will find that each of the options on the toolbar can also be found in the menus. The Toolbar is located at the top of the screen just under the menus. On the left, the toolbar contains buttons that allow you to reset, open, and save templates. There is also an option that allows you to quickly choose whether to display a section at the end of the report that documents the procedure settings that were used to generate it. On the right, the toolbar contains navigation buttons to help you quickly move among windows in the system and load new procedures.

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## List of Procedures by Number

The following is a list of all **NCSS** procedures by their procedure number. Settings template files have the extension *\*.t[Procedure Number]*, where *[Procedure Number]* is replaced by the number of the procedure given below.

Proc. #	Name
1	Balanced Design Analysis of Variance
2	General Linear Models (GLM)
3	Loglinear Models
4	Multivariate Analysis of Variance (MANOVA)
5	One-Way Analysis of Variance
6	Hierarchical Clustering / Dendrograms
7	Fuzzy Clustering
8	K-Means Clustering
9	Medoid Partitioning
10	Regression Clustering
11	Function Plots
12	Two-Sample T-Test
13	Ratio of Polynomials Fit - Many Variables
14	Ratio of Polynomials Search - Many Variables
15	Nonlinear Regression
16	Two-Sample T-Test from Means and SD's
17	Ratio of Polynomials Fit - One Variable
18	Ratio of Polynomials Search - One Variable
19	Scatter Plot Matrix for Curve Fitting
20	Sum of Functions Models

## The Procedure Window

Proc. #	Name
21	Paired T-Test
23	Data Screening
24	Descriptive Statistics
27	Analysis of Two-Level Designs
28	Response Surface Regression
29	Fractional Factorial Designs
30	Response Surface Designs
31	Screening Designs
32	Taguchi Designs
33	Two-Level Designs
34	ARIMA (Box-Jenkins)
35	Autocorrelations
36	Automatic ARMA
37	Cross-Correlations
38	Decomposition Forecasting
39	Exponential Smoothing - Horizontal
40	Exponential Smoothing - Trend
41	Exponential Smoothing - Trend / Seasonal
42	Spectral Analysis
43	Theoretical ARMA
44	Canonical Correlation
45	Correspondence Analysis
46	Discriminant Analysis
47	Equality of Covariance
48	Factor Analysis
49	Item Analysis
50	Item Response Analysis
51	One-Sample T-Test
52	Multidimensional Scaling
53	Principal Components Analysis
54	All Possible Regressions
57	One Proportion
58	Subset Selection in Multivariate Y Multiple Regression
61	Stepwise Regression
63	Pareto Charts
70	Mantel-Haenszel Test
72	Probability Calculator
74	Box Plots
75	Contour Plots
76	Dot Plots
78	Histograms
79	Percentile Plots
81	Scatter Plots
82	Density Plots
83	Probit Analysis
84	Linear Programming with Tableau
85	R & R Study
86	Design Generator
87	Bar Charts
88	Error-Bar Charts
89	Pie Charts
91	3D Scatter Plots
92	3D Surface Plots

## The Procedure Window

Proc. #	Name
93	Data List
96	Appraisal Ratios (Old Version)
97	Ridge Regression
98	Principal Components Regression
99	Latin Square Designs
100	Gamma Distribution Fitting
101	Beta Distribution Fitting
102	Distribution (Weibull) Fitting
103	Parametric Survival (Weibull) Regression
104	Balanced Incomplete Block Designs
105	D-Optimal Designs
106	Area Under Curve
107	Scatter Plot Matrix
108	Repeated Measures Analysis of Variance
109	Bar Charts (2 Factors)
110	Box Plots (2 Factors)
111	Error-Bar Charts (2 Factors)
112	Dot Plots (2 Factors)
113	Percentile Plots (2 Factors)
114	Density Plots (2 Factors)
115	Histograms - Comparative (2 Factors)
116	Combo Charts
117	Combo Charts (2 Factors)
118	Line Charts
119	Line Charts (2 Factors)
120	Mosaic Plots
121	Lin's Concordance Correlation Coefficient
136	Comparables - Sales Price (Old Version)
137	Standard Deviation Calculator
138	Chi-Square Effect Size Calculator
139	Survival Parameter Conversion Tool
144	Odds Ratio and Proportions Calculator
145	Analysis of 2x2 Cross-Over Designs using T-Tests
147	Cumulative Incidence
150	Kaplan-Meier Curves (Logrank Tests)
151	Life-Table Analysis
152	Mediation Analysis
153	Linear Regression and Correlation
154	Hotelling's Two-Sample T2
155	Hotelling's One-Sample T2
156	Multiple Regression (Old Version)
157	Multiple Regression
158	Robust Regression
159	Subset Selection in Multiple Regression
160	Poisson Regression
161	Logistic Regression (Old Version)
162	Cox Regression
164	Contingency Tables (Crosstabs / Chi-Square Test)
165	Descriptive Statistics - Summary Tables (Old Version)
166	Frequency Tables
171	Hybrid Appraisal Models (Old Version)
172	Binary Diagnostic Tests - Single Sample
173	Binary Diagnostic Tests - Two Independent Samples

## The Procedure Window

<b>Proc. #</b>	<b>Name</b>
174	Binary Diagnostic Tests - Paired Samples
175	Binary Diagnostic Tests - Clustered Samples
176	Histograms - Comparative
177	Curve Fitting - General
178	Meta-Analysis of Proportions
179	Meta-Analysis of Correlated Proportions
180	Meta-Analysis of Means
181	Meta-Analysis of Hazard Ratios
182	ROC Curves (Old Version)
184	Time Calculator
186	Tolerance Intervals
187	Levey-Jennings Charts
200	Macro Command Center
201	Mixed Models - No Repeated Measures
202	Mixed Models - Repeated Measures
203	Mixed Models - Random Coefficients
260	Merging Two Datasets
261	Circular Data Analysis
262	Nondetects-Data Group Comparison
263	Nondetects-Data Regression
282	Clustered Heat Maps (Double Dendrograms)
286	Multiple Regression with Serial Correlation
287	Data Simulation
288	Mixed Models - General
297	Data Matching - Optimal
298	Data Stratification
299	Data Matching - Greedy
300	Box-Cox Transformation
301	Box-Cox Transformation for Two or More Groups (T-Test and One-Way ANOVA)
302	Box-Cox Transformation for Simple Linear Regression
303	Point-Biserial and Biserial Correlations
305	Cochran's Q Test
306	Michaelis-Menten Equation
307	Bland-Altman Plot and Analysis
308	Deming Regression
309	3D Bar Charts
310	3D Bar Charts (2 Factors)
311	Grubbs' Outlier Test
312	Paired T-Test for Equivalence
313	Paired T-Test for Non-Inferiority
314	3D Line Charts
315	3D Line Charts (2 Factors)
316	Two-Sample T-Test for Non-Inferiority
317	Two-Sample T-Test for Equivalence
318	Harmonic Regression
319	Stem-and-Leaf Plots
320	Back-to-Back Stem-and-Leaf Plots
321	X-bar and R Charts
322	X-bar and s Charts
323	X-bar Charts
324	R Charts
325	s Charts
326	CUSUM Charts



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Proc. #	Name
327	Moving Average Charts
328	EWMA Charts
329	Individuals and Moving Range Charts
330	Capability Analysis
331	Normality Tests
332	Two Proportions
333	Lag Plots
334	Analysis of Runs
335	Two Proportions - Non-Inferiority Tests
336	Two Proportions - Superiority by a Margin Tests
337	Two Proportions - Two-Sided Tests vs. a Margin
338	Two Proportions - Equivalence Tests
339	Two Correlated Proportions (McNemar Test)
340	Normal Probability Plots
341	Weibull Probability Plots
342	Uniform Probability Plots
343	Exponential Probability Plots
344	Gamma Probability Plots
345	Chi-Square Probability Plots
346	Half-Normal Probability Plots
347	Log-Normal Probability Plots
348	Probability Plot Comparison
349	Two Correlated Proportions - Superiority by a Margin Tests
350	Two Correlated Proportions - Equivalence Tests
351	Two Correlated Proportions - Non-Inferiority Tests
352	P Charts
353	NP Charts
354	C Charts
355	U Charts
356	Reference Intervals - Age-Specific
361	Linear Programming with Bounds
362	Mixed Integer Programming
363	Quadratic Programming
364	Transportation
365	Assignment
366	Minimum Spanning Tree
367	Shortest Route
368	Maximum Flow
369	Minimum Cost Capacitated Flow
370	Appraisal Ratio Studies
371	Comparables Appraisal
372	Hybrid Appraisal Models
373	Multiple Regression for Appraisal
374	Correlation
375	Acceptance Sampling for Attributes
376	Operating Characteristic Curves for Acceptance Sampling for Attributes
377	One ROC Curve and Cutoff Analysis
378	Comparing Two ROC Curves - Independent Groups Design
379	Comparing Two ROC Curves - Paired Design
380	Transshipment
381	Conditional Logistic Regression
382	Multiple Regression - Basic
383	Negative Binomial Regression

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Proc. #	Name
384	Geometric Regression
385	Two-Stage Least Squares
386	Zero-Inflated Negative Binomial Regression
387	Scatter Plots with Error Bars
388	Scatter Plots with Error Bars from Summary Data
389	Zero-Inflated Poisson Regression
390	Logistic Regression
391	Error-Bar Charts from Summary Data
392	Error-Bar Charts from Summary Data (2 Factors)
393	Descriptive Statistics - Summary Tables
394	Fractional Polynomial Regression
395	Passing-Bablok Regression for Method Comparison
396	Robust Linear Regression (Passing-Bablok Median-Slope)
397	Descriptive Statistics - Summary Lists
398	Circular Data Correlation
399	Reference Intervals
410	Paired T-Test for Superiority by a Margin
411	One-Sample T-Test for Non-Inferiority
412	One-Sample T-Test for Superiority by a Margin
413	One-Sample T-Test for Equivalence
414	Two-Sample T-Test for Superiority by a Margin
415	Analysis of 2x2 Cross-Over Designs using T-Tests for Non-Inferiority
416	Analysis of 2x2 Cross-Over Designs using T-Tests for Superiority by a Margin
417	Analysis of 2x2 Cross-Over Designs using T-Tests for Equivalence
418	One Proportion - Non-Inferiority Tests
419	One Proportion - Superiority by a Margin Tests
420	One Proportion - Equivalence Tests
421	Two-Sample Non-Inferiority Tests for Survival Data using Cox Regression
422	Two-Sample Superiority by a Margin Tests for Survival Data using Cox Regression
423	Two-Sample Equivalence Tests for Survival Data using Cox Regression
424	Cluster Randomization - Create Cluster Means Dataset
425	Cluster Randomization - Create Cluster Proportions Dataset
426	Cluster Randomization - Create Cluster Rates Dataset
427	General Linear Models (GLM) for Fixed Factors
429	One-Way Analysis of Covariance (ANCOVA)
430	Analysis of Covariance (ANCOVA) with Two Groups
431	Correlation Matrix
500	Group-Sequential Analysis for Two Means with Known Variances
501	Group-Sequential T-Tests for Two Means
502	Group-Sequential Analysis for Two Proportions
503	Group-Sequential Analysis for Two Hazard Rates
504	Group-Sequential Non-Inferiority Analysis for Two Means with Known Variances
505	Group-Sequential Superiority by a Margin Analysis for Two Means with Known Variances
506	Group-Sequential Non-Inferiority T-Tests for Two Means
507	Group-Sequential Superiority by a Margin T-Tests for Two Means
508	Group-Sequential Non-Inferiority Analysis for Two Proportions
509	Group-Sequential Superiority by a Margin Analysis for Two Proportions
510	Group-Sequential Non-Inferiority Analysis for Two Hazard Rates
511	Randomization Lists
512	Simple Random Sampling
513	Stratified Random Sampling
514	Simple Random Sampling with Group Assignment
515	Stratified Random Sampling with Group Assignment

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<b>Proc. #</b>	<b>Name</b>
516	Group-Sequential Superiority by a Margin Analysis for Two Hazard Rates
517	Group-Sequential Analysis for One Mean with Known Variance
518	Group-Sequential T-Tests for One Mean