

Appendix B

Creating Your Own Grid-based Database

B.1 Creating Your Own Database (Empty Map Set)

B.2 Importing Data via Add New Layers

B.3 Importing Data via the Map Analysis Tool

B.4 Importing Data via the File Tool


B.5 Exporting Data via Map Analysis Tool

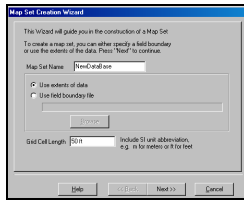
B.6 Exporting Data via File Tool

B.7 Seamless Data Exchange with Surfer

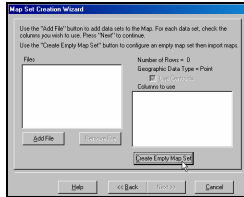
B.7 Seamless Data Exchange with MapInfo

B.1 Creating Your Own Database (Empty Map Set)

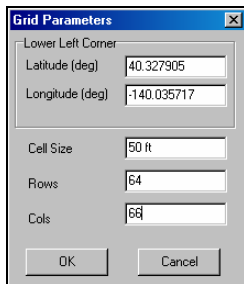
 Click on the *Create a new file* button or from the main MapCalc menu, select **File** → **New**.



Specify a name for your new data base (e.g., **NewDatabase**) then press **Next**.



Click on **Create Empty Map Set** button to pop-up the Grid Parameters dialog box.



Specify the **Latitude** and **Longitude** of the lower-left corner of the analysis grid (e.g., Lat= **40.327905**, Lon= **-140.035717**). *Note:* MapCalc Evaluation and Learner versions require Lat/Lon WGS84 datum.

Academic and Professional versions accept data in a variety of geographic references.

Enter the **Cell Size** (e.g., **50** feet) and the number of **Rows** and **Columns** comprising the analysis grid area (e.g., **64** rows and **66** columns). Click **OK** to create the empty database.

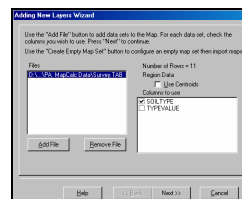
Data can be entered into the new MapCalc database via several import procedures (see below).

Note: The MapCalc Evaluation and Learner versions can configure analysis grids up to 100 rows by 100 columns. Grid configuration for MapCalc Academic and Professional versions are not software limited but storage and processing requirements are exponential. Interactive processing of grids larger than 500 x 500 is not recommended—use batch process through scripts for large grid configurations.

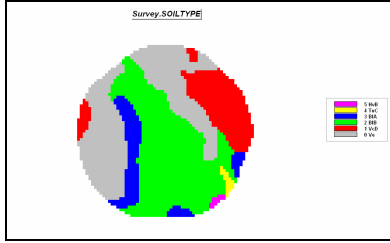
B.2 Importing Data via Add New Layers



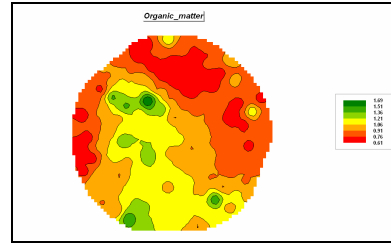
To import an ESRI *.shp* or MapInfo *.tab* polygon file, select **Map Set** → **Add New Layers** to pop-up the *Adding New Layers* wizard.



Press the **Add File** button and specify a file (e.g., **Survey.tab**), select the data column(s) to use (e.g., **SOILTYPE**) and click **Next**. Click **Finish** to create the map.



Imported Soil Survey Map from a MapInfo .tab file



Imported Organic Matter data Map from a Bare matrix (.txt)

If you have a field boundary map in .shp or .tab format you can use it to directly derive the database configuration. Instead of creating an *Empty Map Set* (section B.1, step 2) press the Add New Layers button as described above. The Latitude and Longitude coordinates will be automatically assigned based on the extent of the boundary file.

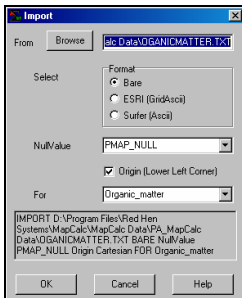
B.3 Importing Data via the Map Analysis Tool

Importing data via the **Map Analysis** tool accepts grid files for individual maps in three standard formats—

- Bare Bare ASCII matrix of values, row major order
- Grid Grid ASCII format (ESRI Software)
- Surfer Surfer ASCII format (Golden Software)

...See section B.5, Exporting Data via Map Analysis Tool for descriptions of these standard grid file formats.

The grid files must have the same configuration as the active database-- *#Rows, #Columns, Cell Size* and lower-left *Registration Coordinates*.



For example, add data in *Bare* format to the *NewDataBase* (see B.1 above) by entering **Map Analysis** → **Import** and completing the *Import* dialog box as—**ORGANICMATTER.TXT, Bare, Organic_matter..**

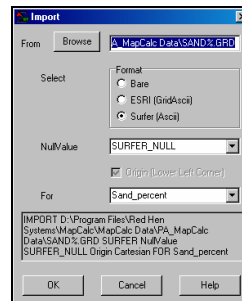
B.4 Importing Data via the File Tool

Importing data via the **Map Analysis** tool accepts grid files for individual maps in four standard formats—

- Bare Bare ASCII matrix of values, row major order
- Grid Grid ASCII format (ESRI Software)
- Surfer Surfer ASCII format (Golden Software)
- MIG Binary Grid format (MapInfo)

...See section B.5, Exporting Data via Map Analysis Tool for descriptions of these standard grid file formats.

The grid files must have the same configuration as the active database-- *#Rows, #Columns, Cell Size* and lower-left *Registration Coordinates*.



For example, add data in *Surfer* format to the *NewDataBase* (see section B.1 above) by entering **File** → **Import** and completing the *Import* dialog boxes as shown—**%SAND.grd, Surfer (Ascii), Sand_percent.**

B.5 Exporting Data via Map Analysis Tool

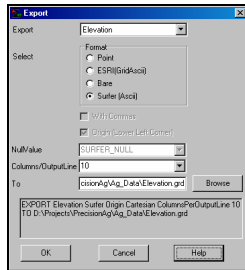
Exporting data via the **Map Analysis** tool creates a grid file for individual maps in four standard formats—

- Point Column, Row, Value (nulls skipped)

- Grid ASCII format (ESRI)
- Bare Bare ASCII matrix of values, row major order
- Surfer Surfer ASCII format (Golden Software)

contain a value for each cell location ordered left to right, top to bottom.

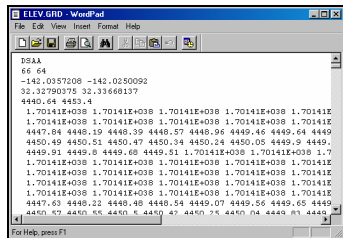
Select **Map Analysis** → **Import/Export** → **Export** to pop-up the *Export* dialog box.



Select the **Elevation** map, specify **Surfer (Ascii)** and Browse/Name the file for export (Elevation.grd). Press **OK** to create the file.

Surfer GS Ascii five header lines—
 DSAA (ASCII)
 66 64 (NCOLS)
 NROWS
 -142.0357208 -142.0250092 (LON)
 Low/High
 32.32790375 32.33668137 (LAT Low/High)
 4440.64 4453.4 (Z Low/High)
 ...Data separated by spaces and organized as rows in row-major matrix (see Bare above)

ESRI GridAscii six header lines—
 NCOLS 66
 NROWS 64
 XLLCORNER -142.0357208 (LON)
 YLLCORNER 32.32790375 (LAT)
 CELLSIZE 0.000162298
 NODATA_VALUE 3.4E+038
 ...Data separated by spaces and organized as rows in row-major matrix (see Bare above)

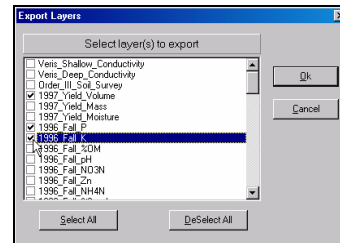


The file generated is a standard text file and can be viewed using any word processing package.

B.6 Exporting Data via File Tool

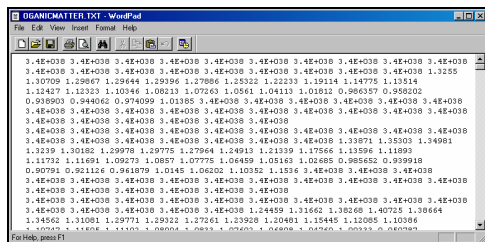
From the Main Menu select **File** → **Export** → **Data** to access the wizard for exchanging data.

Export formats in the Map Analysis tool include **Point** (each record contains a *Column Row Value* triplet), **Bare** (each record contains all of the values for one row of the grid starting at the top left corner), Surfer GS Ascii and ESRI GridAscii that include header lines with the matrix of data (see below).

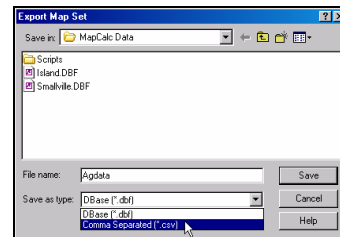


Press the *DeSelect All* button then click on the boxes next to the **1997_Yield_Volume**, **1997_Fall_P** and **1997_Fall_K** map layers. Press **OK** to begin the export.

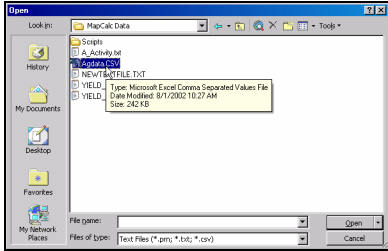
Bare Ascii no header lines—



...Data separated by spaces and organized as rows in row-major matrix—contains no geo-referencing information. File must



Specify “**CSV**” as the type and **Save** the file. This procedure stores the file in the default data folder.



Access *Excel* by clicking on **Start à Programs à Microsoft Excel à File à Open** à browse to the ... \MapCalc Data\ folder à specify **Text Files (*.prn, *.txt, *.csv)** as the file type à click on the **AgData.csv** file à and press the **Open** button.

The exported file containing the specified map layers will be opened in *Excel*.

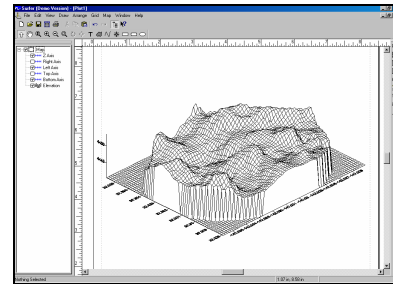
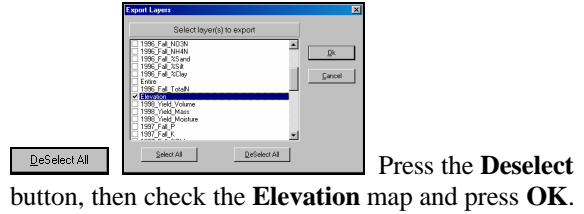
	A	B	C	D	E	F	G
	1997	Yield	1996_Fall	1996_Fall	Lat	Lon	Col
1	26.95	15.108	284.513	32.32797	-142.033	1	20
2	64.162	13.5107	270.396	32.32797	-142.032	1	21
3	77.7576	12.1243	257.705	32.32797	-142.032	1	22
4	94.4194	11.4252	251.525	32.32797	-142.032	1	23
5	124.531	11.3609	251.573	32.32797	-142.032	1	24
6	129.153	11.4498	250.959	32.32797	-142.032	1	25
7	138.332	11.4074	248.643	32.32797	-142.032	1	26
8	140.056	11.3075	245.956	32.32797	-142.031	1	27
9	113.072	11.2426	244.366	32.32797	-142.031	1	28
10	55.2259	10.4822	231.898	32.32797	-142.031	1	29
11	105.716	10.5442	232.088	32.32797	-142.031	1	30
12	129.918	10.223	226.276	32.32797	-142.031	1	31
13	105.946	10.0586	219.554	32.32797	-142.031	1	32
14	130.981	9.75907	202.88	32.32797	-142.031	1	33

In addition to .CVS format, there are several other standard export formats—

- .DBF supports most spreadsheet and database software
- .TAB supports MapInfo desktop mapping software
- .SHP supports ArcView desktop mapping software
- .ACS supports Spatial Analyst software
- .GRD supports Surfer software (GS ASCII).

B.7 Seamless Data Exchange with Surfer

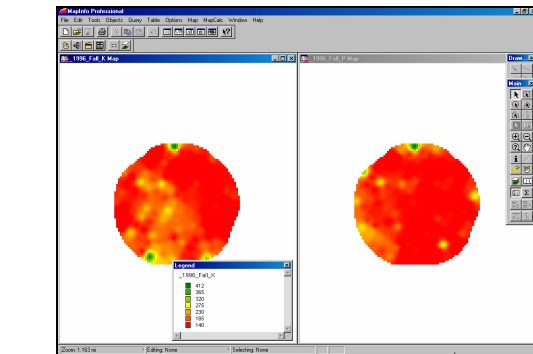
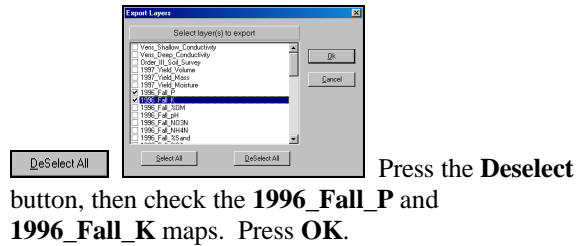
Select **File à Export à Send to Surfer à Wireframe** to automatically transfer the data and launch Surfer provided it is installed on your computer...



Surfer will be executed and the Elevation data automatically transferred.

B.8 Seamless Data Exchange with MapInfo

Select **File à Export à Send to MapInfo à Wireframe** to automatically transfer the data and launch Surfer provided it is installed on your computer...



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