

Using the TI Connect™ Software with the TI-83/TI-84+ Graphics Calculator.

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TI Connect™ Software Overview	1
TI Connect™ Screen	1
TI Connect™ Home Screen	1
TI Connect™ Software Tools	2
TI Connect™ Connect Tools Screen	2
Content Tools Screen Tools	2
Connecting the Calculator to the Computer	3
Connecting the mini-A to mini-B USB Cable	3
Connecting the SilverLink (USB Graph Link) Cable	5
Using the TI Connect™ Software Tools	5
TI DeviceExplorer	6
TI ScreenCapture	7
Backup	8
Restore	8
TI DataEditor	9
Managing number variables	10
Managing list variables	10
Managing matrix variables	11
TI DeviceInformation (TI DeviceInfo)	12
Explore My TI Data	12

TI Connect™ Software Overview

The TI Connect™ software is a communications and data management package that allows the user to connect the calculator to the computer through the use of a variety of communications cables. TI Connect™ enables the user to create, edit, and transfer data, back up and restore the contents of the calculator, update the operating system and applications, and capture the screen of the calculator.

Initially the TI Connect™ software includes the TI DeviceExplorer, TI ScreenCapture, Backup, Restore, TI DataEditor, TI DeviceInformation, and Explore My TI Data tools. Optional software applications can be installed and accessed through TI Connect™. Some of these optional applications include CellSheet Converter, StudyCards Creator, NoteFolio Creator, TimeSpan Creator, LearningCheck Creator, TI Package Explorer, and TI Interactive. Most of these packages are free downloads from Texas Instruments. TI Interactive is for purchase only.

TI Connect™ can communicate to the calculator through the computer USB interface to the calculator USB interface using a standard mini-A to mini-B USB cable. Communication with calculators that do not have a USB interface can be performed through the calculator's serial interface using either the SilverLink (USB Graph Link) cable or the older Graph Link serial cables.

TI Connect™ and optional software applications are available for download from:
http://education.ti.com/educationportal/sites/US/productCategory/us_computer_software.html

TI Connect™ Screen

The TI Connect™ screen contains six buttons and one interface window. The four buttons across the top are: Home, Content Tools, TI Online, and Updates. The lower two buttons are Options and Help. The standard Windows buttons of close and minimize are included at the upper right of the window. The center of the window contains the interface window.

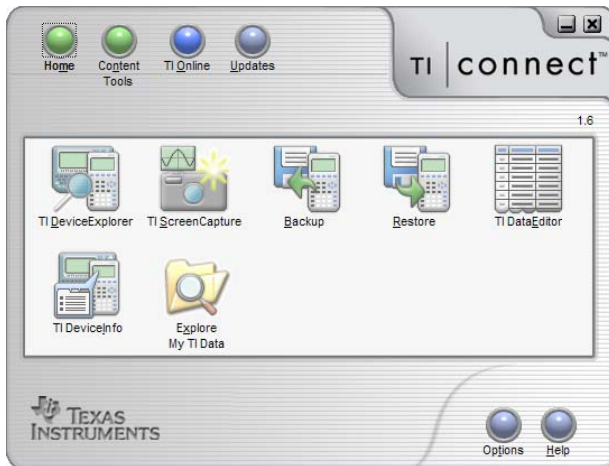


Figure 1 TI Connect Home screen.

TI Connect™ Home Screen

Initially the Home screen is presented. Through this screen the TI DeviceExplorer, TI ScreenCapture, Backup, Restore, TI DataEditor, TI DeviceInformation, and Explore My TI Data tools features are accessed.

TI Connect™ Software Tools

The TI DeviceExplorer application enables the user to transfer device files between a TI handheld device and a computer.

The TI ScreenCapture application enables the user to capture and manipulate TI handheld device screens.

The Backup application enables the user to backup the files of TI handheld devices.

The Restore application enables the user to restore files to backed-up TI handheld devices.

The TI DataEditor application enables the user to create and manipulate data variables.

The TI DeviceInformation (TI DeviceInfo) application enables the user to find information about connected TI handheld devices.

The Explore My TI Data application will open Windows Explorer and enable the user to work with device and group files.

TI Connect™ Connect Tools Screen

The Content Tools screen initially presents icons for the optional applications CellSheet Converter, StudyCards Creator, NoteFolio Creator, TimeSpan Creator, LearningCheck Creator, TI Package Explorer, and TI Interactive. The yellow caution symbol will be displayed on each icon where the application is not loaded or available. When the applications are loaded the yellow caution symbol will be removed, the icon will no longer be grayed out, and the icon will access the application. These optional packages will not be addressed in this document.



Figure 2 Connect Tools Screen.

Content Tools Screen Tools

The TI CellSheet™ Converter application enables the user to convert spreadsheets to/from device spreadsheets and computer spreadsheets.

The TI StudyCards™ Creator application enables the user to create electronic flash cards and transfer them between your device and computer.

The TI NoteFolio™ Creator application enables the user to create notes and transfer them between your device and computer.

The TImeSpan™ Creator application enables the user to create time lines and send them to a TI-83 Plus, TI-83 Plus Silver Edition, TI-84 Plus, or TI-84 Plus Silver Edition device.

The TI LearningCheck™ Creator application enables the user to create educational documents and share them with connected devices.

The TI Package Explorer software application enables the user to view package files and send their contents to connected TI handheld devices.

The TI InterActive!™ software application enables the user to create and use interactive math and science documents.

Connecting the Calculator to the Computer

Two communications cables will be addressed. The standard mini-A to mini-B USB cable, preferred cable, and the SilverLink (USB Graph Link) cable.

Both cables have a standard USB on one end which connects to an available USB port on the computer. The drivers for the cables are part of the TI Connect™ software package and are loaded onto the computer when the software is installed.

Connecting the mini-A to mini-B USB Cable

Insert the mini-A end of the mini-A to mini-B USB cable into a USB port on the computer. When you insert the mini-B end into the USB port on the calculator, the calculator will turn on and when using Windows XP a Found New Hardware USB Device message may be displayed on the computer. This message will change to a Found New Hardware TI Educational Handheld Device message. A Found New Hardware Wizard window will appear. This Found New Hardware Wizard will only appear the first time a USB port is used on the PC.



Figure 3 Found New Hardware Wizard.

The Install the software automatically (Recommended) will be selected, click Next. The message in the Found New Hardware Wizard will change to Please wait while the wizard searches... message. On Windows XP™ a warning message will be displayed, select Continue Anyway.

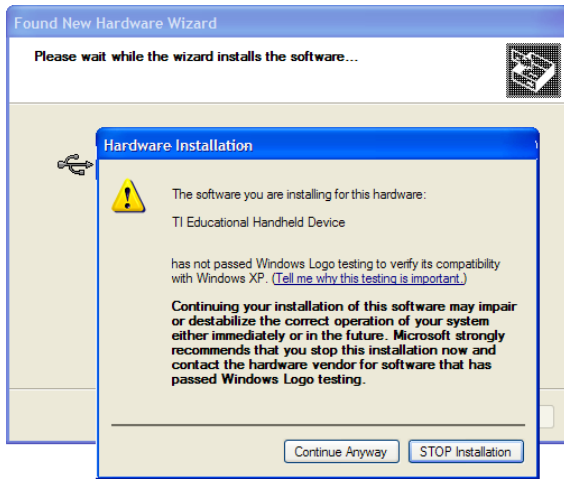


Figure 4 Hardware Installation Warning.

The final message will be Completing the Found New Hardware Wizard message, select Finish.

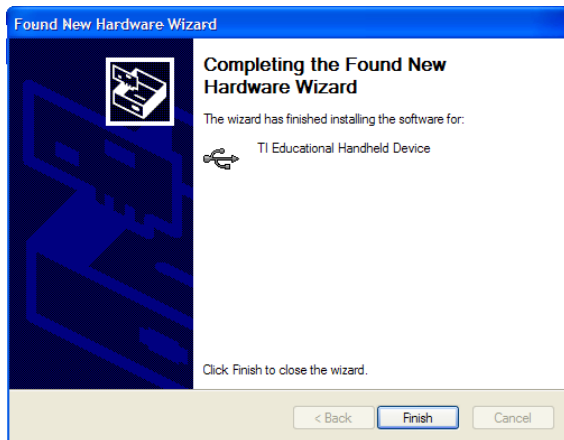


Figure 5 Hardware Wizard Completed.

The final Found New Hardware Your new hardware is installed and ready to use message will be displayed, close this message. The computer is now ready to use the cable to communicate with the calculator.

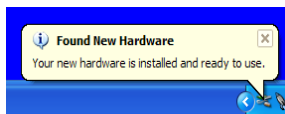


Figure 6 Found New Hardware.

If a different USB port is used at another time, the Found New Hardware process will be performed for that port. When a USB port is used that had been previously used, the driver will not be re loaded.

Connecting the SilverLink (USB Graph Link) Cable

When the silver USB to calculator serial cable is inserted into a USB port on the computer, a Found New Hardware TI-Graph Link USB message will be displayed on the computer.

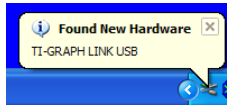


Figure 7 Found TI-Graph Link USB.

This message will change to a Found New Hardware Texas Instruments SilverLink (USB Graph Link) Cable message.

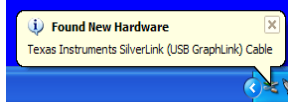


Figure 8 Found SilverLink Cable.

The final message will be Found New Hardware Your new hardware is installed and ready to use. The computer is now ready to use the cable to communicate with the calculator.

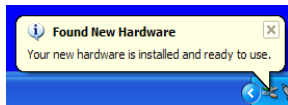


Figure 9 New Hardware Installed.

If a different USB port is used at another time, the Found New Hardware process will be performed for that port. When a USB port is used that had been previously used, the driver will not be re loaded. Plug the other end of the SilverLink cable, 1/8 inch stereo phono plug, into the round 1/8 inch jack on the calculator. The calculator will turn on when the plug is connected to the calculator.

Using the TI Connect™ Software Tools

The TI Connect™ software will attempt to connect to the calculator whenever a tool is selected. The com ports will be displayed and searched for a connection to a calculator.



Figure 10 Searching for TI Device.

If a SilverLink cable is used a USB 1 port will also be displayed regardless if the SilverLink cable is connected to the calculator or not. When using the USB mini-A to mini-B, the USB 1 port will only be displayed when the calculator is turned on. The calculator must be turned on in

order for the computer to locate and connect to the calculator. If necessary, press the Select button.

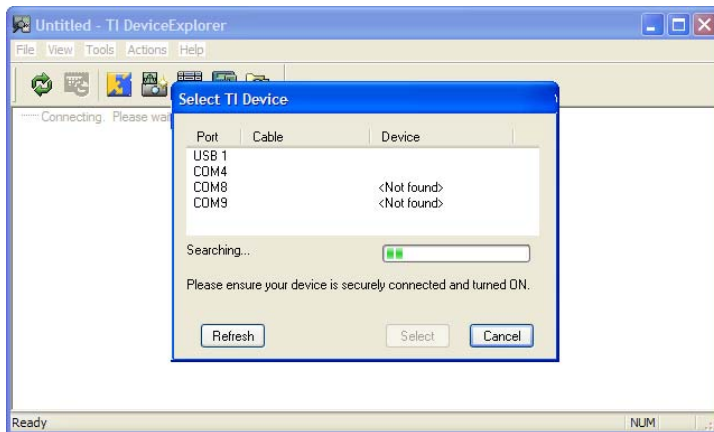





Figure 11 Searching for Device with a connected USB Cable.

When connected, a software tool specific window will be displayed. From each tool window, the other software tools can be accessed through the icons or Tools or Actions menus. The software tool window can be accessed by selecting the Home button.

TI DeviceExplorer

TI Device Explorer enables the user to transfer device files between a TI handheld device and a computer. The window displays a tree structure of the information on the calculator. Clicking on the  will expand the tree of the selected section. For example, clicking on the  next to Program will expand and display all of the programs on the calculator. Clicking on the  will collapse the tree of the selected section. Items within a group can be copied to the PC or updated from the PC through File menu or traditional Windows drag and drop techniques. Items on the calculator can also be deleted through the right click delete menu of the mouse. Many items can also be opened through the right click open menu of the mouse. Programs can not be opened through TI Connect™, they can be created and edited using the older TI-Graph Link software for the specific calculator.

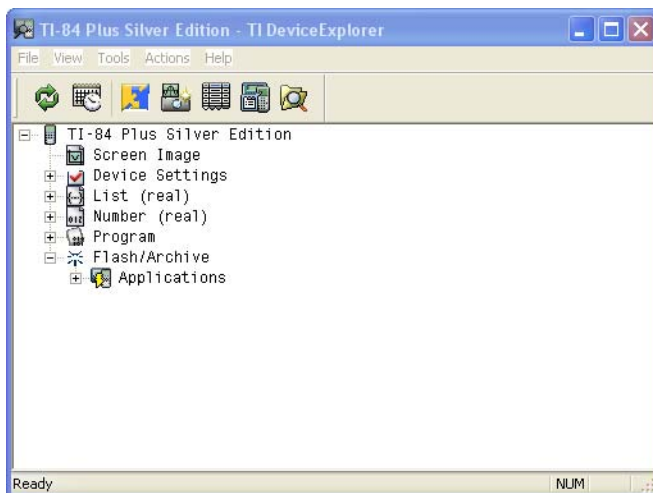


Figure 12 Device Explorer Window.

TI ScreenCapture

TI Screen Capture enables the user to capture and manipulate the display of the calculator for use in documents. Prepare the calculator with the desired screen and select TI ScreenCapture.

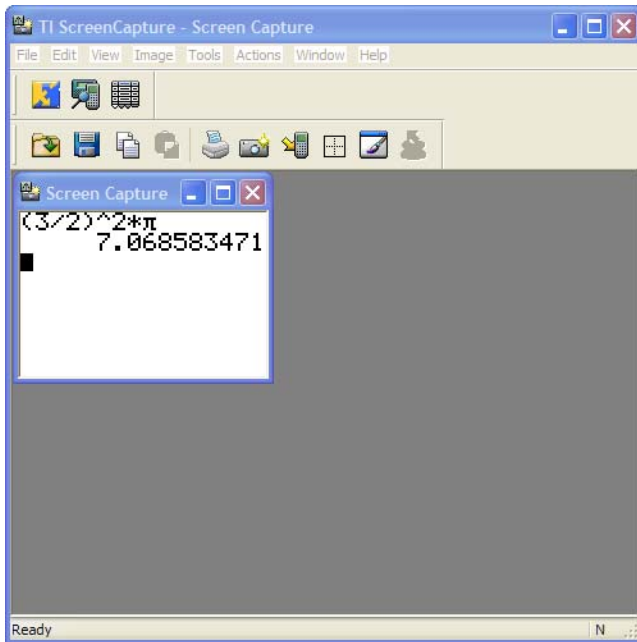


Figure 13 Screen Capture Window.

Through the View menu, the Default Screen Size can be selected as 100%, 200%, or 300%.

An existing captured screen can be resized through the Image menu Resize option. Also through the Image menu, the image can be Flipped horizontally; Rotated 90°, 180°, or 270°; or add a border to the image. Once the image is saved, the boarder option is no longer available. The Image menu is only available when there is an image opened. After saving the image as a bitmap, .bmp, file the Windows Paint program can be launched from the Image menu through Launch Image Editor and used to edit the image. Save the image by selecting Save As from the File menu. Navigate to the desired directory, My TI Data is the default directory, supply a name and select Save. The default file type is BMP but can be changed to a variety of file types.

Additional screen captures can be performed by using the Get Screen selection in the Actions menu. The active image can be sent back to the calculator by using Send to Device from the Actions menu. The image will be sent and saved on the calculator as a picture. A message window will appear allowing the user to select a picture name, pic0 through pic9, and where in memory to save it in the calculator, RAM or Archive. Select the desired picture name and accept the memory location RAM. To display the picture on the calculator select Draw, [2nd] [PRGM], cursor over to STO and select RecallPic, [2]. RecallPic requires the name of the picture which can be selected through [VARS] then Picture, [4], then scroll and select the desired picture.

The stored bitmap images on the computer can be inserted into a document. Open the word processing program Microsoft Word. TI ScreenCapture select the desired screen image and select Copy from the Edit menu. In Microsoft Word position the cursor to the desired insert

location and select Paste from the Edit menu. The same process can be done in Microsoft PowerPoint and other programs.

Backup

Backup enables the user to backup the calculator's RAM, memory, Archive, or Apps, applications. Archive will only be selectable if there is an Archive on the calculator, By default RAM and Apps will be selected. Select the desired components on the calculator that is desired to backup. The estimated backup size will be displayed. Through the Backup to: field the backup file name is specified. The location and file name can be selected by selecting the Open Folder icon to the right of the field. Once a suitable backup location and file name has been selected, the backup process is started by selecting the OK button.

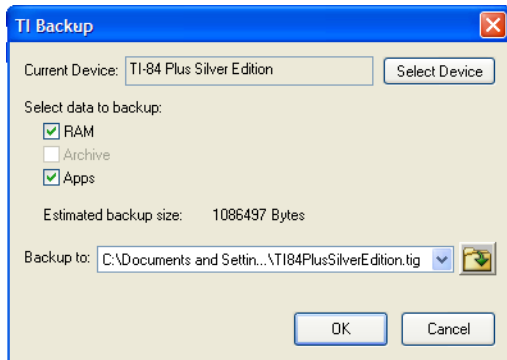


Figure 14 Backup Window.

Restore

Restore enables the user to restore the calculator to a previously saved backup condition. The initial Open dialog window allows the user to navigate to and select the backup file to restore to the calculator. Once selected, select the Open button.

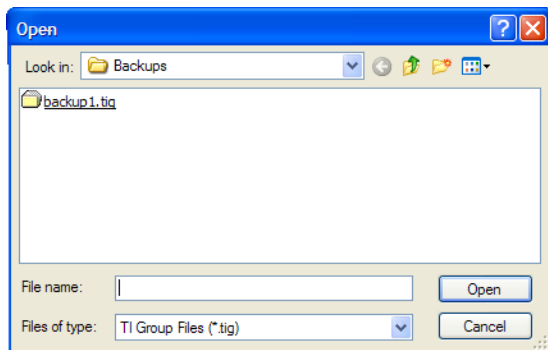


Figure 15 Restore Open Window.

The Restore window is now displayed. The components that were backed up are available to restore, RAM, Archive, and Apps, same as Backup. Select the components that are desired to restore on the calculator. Select the OK button to begin the restore process.

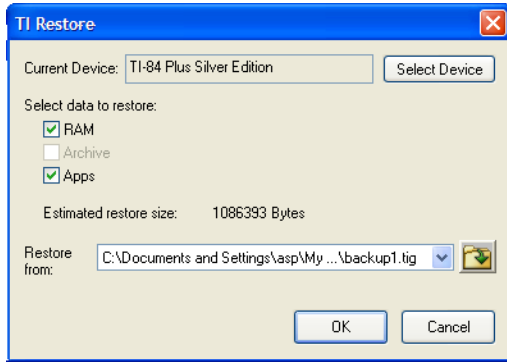


Figure 16 Restore Window.

If there are items on the calculator that are going to be overwritten by the restore process, a warning window will appear. If all of the older values on the calculator are to be replaced, select Replace All. Otherwise, process each item with a Replace, Rename, or Skip. The Restore process can be terminated by selecting Cancel.

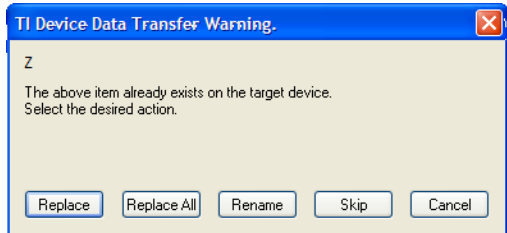
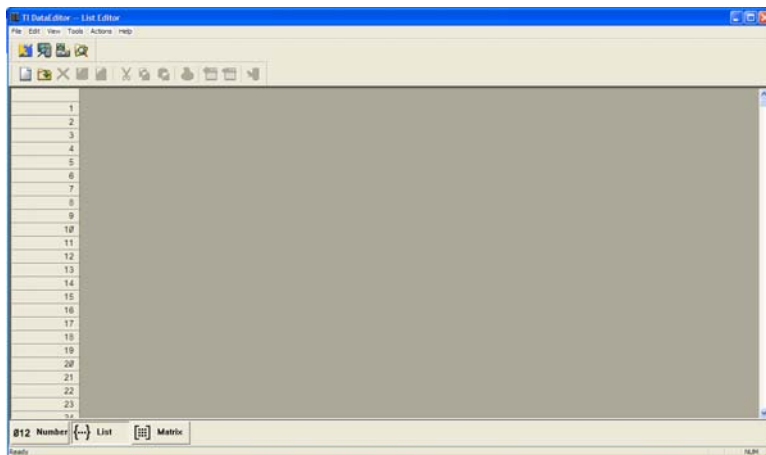


Figure 17 Replace Window.

TI DataEditor

The Data Editor enables the user to create and edit numeric variables, lists, and matrices.



Through the File menu, a New Number, New List, or New Matrix can be created. The numbers, lists, and matrices can be closed, saved, or opened through the File menu. The numbers, lists, or matrices can be exported to or imported from Excel comma separated or text files. The

properties of the item can be adjusted by selecting Properties from the File menu or by right clicking the item and selecting Properties from the pop up menu. The Number Editor, List Editor, or Matrix Editor can be made active through the View menu or by selecting the appropriate button at the bottom of the window. The numbers, lists, or matrices can be sent to the calculator by right clicking the item and selecting Send or through a variety of send options under the Actions menu. Standard editing features of Cut, Copy, Paste, Select, Insert, and Delete are available through the Edit menu.

Managing number variables

A Number variable contains a Name and a Value. Several numbers variables can be created and modified by selecting New Number from File menu. Select a number variable and enter a value. Right click a number variable and select Properties. Enter a single character name of the number variable in the Variable Name field. Select OK to accept the name.

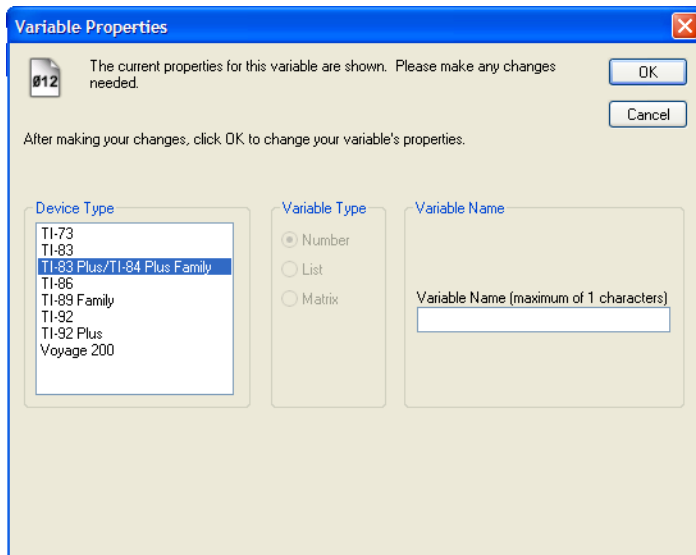


Figure 19 Number Variable Properties Window.

Managing list variables

A List variable contains a Name and a list of values. Several list variables can be created and modified by selecting New List from File menu. Select a cell of a list variable and enter a value. After pressing enter, the selection will move to the next cell for data entry. Right click a list variable and select Properties. Enter a name for the list variable in the Variable Name field. Select OK to accept the name. The default lists L1 Through L6 appear in the variable name area with radio buttons beside each. To use a default list, select the appropriate radio button.

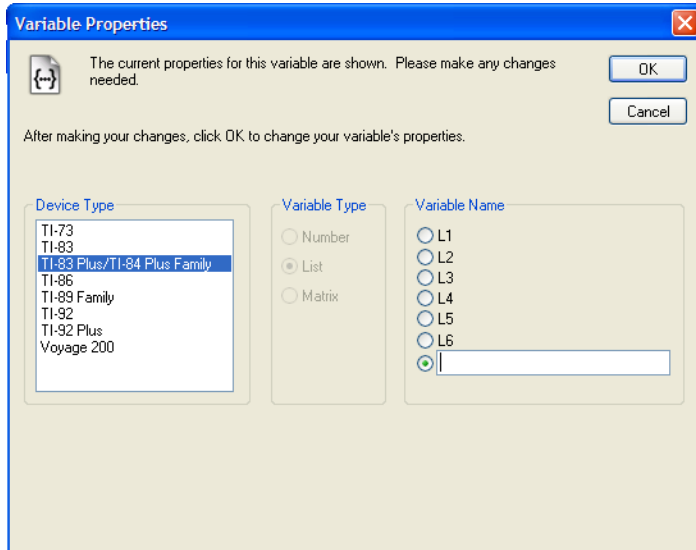


Figure 20 List Variable Properties Window

Managing matrix variables

A Matrix variable contains a Name and a matrix of values. Only one matrix can be modified at a time. Select a cell of a list variable and enter a value. After pressing enter, the selection will move to the next cell down for data entry. At the end of a column, the selection will move to the first cell of the next column. Right click a list variable and select Properties. Only the single character names A through J can be used for a matrix. Select the name by checking the associated radio button in the Variable Name area. The number of rows and columns can be adjusted by entering a value in the Row and Col fields. Select OK to accept the changes.

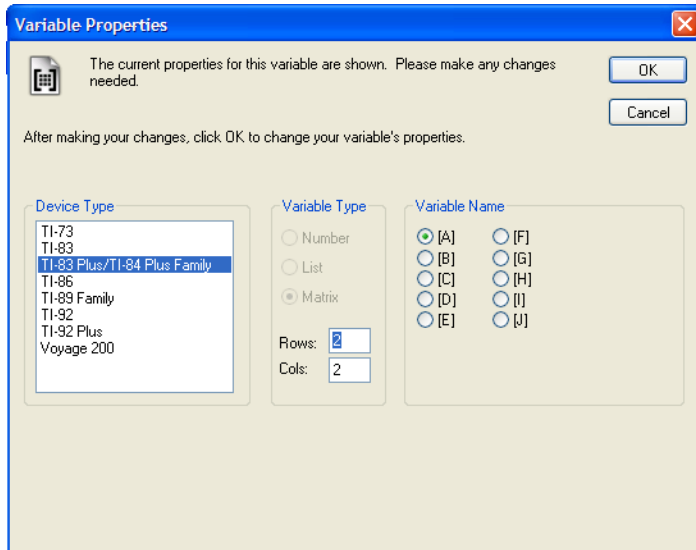


Figure 21 Matrix Variable Properties Window.

TI DeviceInformation (TI DeviceInfo)

Device Information retrieves information about the calculator. Three areas of information are provided: General Information, Installed Applications, and ID Lists. The General Information tab displays the type of calculator, the operating system version, BIOS version, amount of memory, and other general information. The Installed Applications tab displays a list of the applications that are currently installed in the calculator. The ID List tab repeats the Device ID found on the General Information tab.

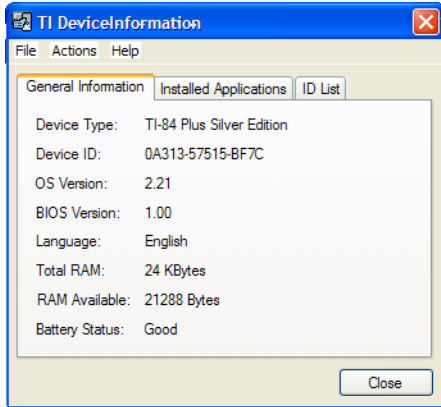


Figure 22 Device Information Window.

Explore My TI Data

Explore My TIData opens a Windows Explorer session of the PC's default TI Connect™ data directory. The user can manage files and work with device and group files.

