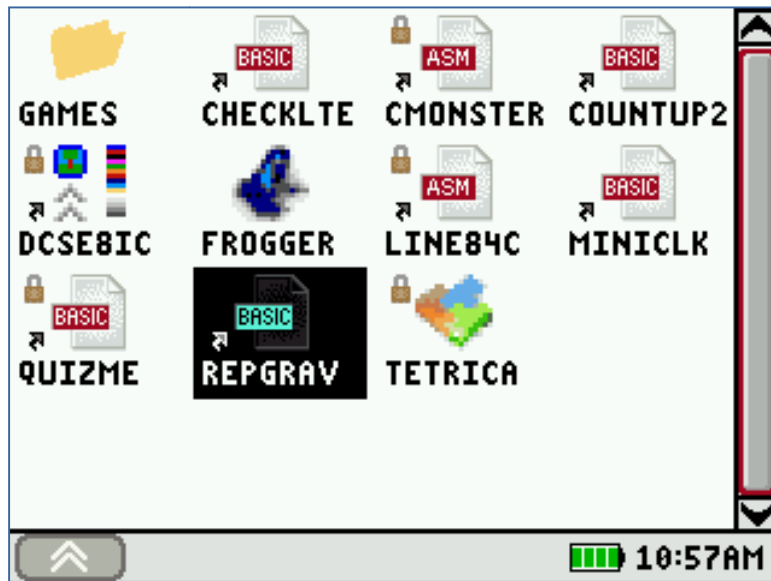


Doors CSE 8.1  
Unabridged Manual



# DOORS CSE 8.1 MANUAL



Kerm Martian and Cemetechn  
<http://dcs.cemetechn.net>

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# CHAPTER 1

## QUICK START GUIDE

### 1.1 | Prerequisites

Before you can install Doors CSE, you must first unzip the file you downloaded. If your computer is running Microsoft Windows, you can simply double click this file and select the "Extract All" tab on the side of the screen. Once you have done this, proceed to the "Transfer" Section. Mac OS X and Linux generally have their own built-in unzipping tools.

### 1.2 | Transfer

Once you have unzipped Doors CSE, you can begin the transfer. On Windows or Macintosh machines, you will probably do best with TI-Connect software, available from [Texas Instruments](#) or on the CD that came with your calculator. You need at least TI-Connect 4.0 to transfer Apps like Doors CSE to a TI-84 Plus C Silver Edition. For Linux based computers, a number of utilities exist and can be found at [ticalc.org](http://ticalc.org), especially TILP II.

#### 1.2.1 | TI-Connect Instructions

1. Run TI-Connect from your Start menu.
2. Select the "Device Explorer" button.
3. Select the proper device from the list (Calculator should be plugged in)
4. Open the folder to which you extracted Doors CSE.
5. Inside this folder, select DoorsCSE.8ck. If you do not have a color-screen TI-84 Plus C Silver Edition, you need Doors CS, not Doors CSE. Go to <http://dcs.cemetech.net> and download Doors CS 7.2 (or above).
6. Drag and Drop the file DoorsCSE.8ck from the folder to the TI-Connect Device Explorer.
7. Follow the TI-Connect prompts to send the file to your calculator.

#### 1.2.2 | Alternate Instructions

1. Find the appropriate file inside the ZIP file: DoorsCSE.8ck.
2. Copy it to your desktop
3. Attach calculator and turn it on
4. Right click on file and select Send to TI Device.
5. Select appropriate connection
6. Click on Send to Device to begin transfer

### 1.3 | First Use

Sending the file to your calculator installs it; no further installation is necessary. To run Doors CSE at any time, press the purple [APPS] key on your calculator, and either use the arrows to select **DoorsCSE** and press [ENTER] or press the number corresponding to the **DoorsCSE** entry in the menu. The first time that you run Doors CSE, it will invisibly install an AppVar that

contains default preferences. You can edit these preferences via the Options section of the DCSE Menu in the lower left of the Doors CSE desktop

## 1.4 | Usage Overview

### 1.4.1 | Keys and Shortcuts

To navigate Doors CSE, use the arrow keys. To run a program or select an option, press the [ENTER] or [2nd] keys. To secondary or "right" click, press the [ALPHA] key. You can turn your calculator off from Doors CSE by pressing the [ON] key; press it again to turn the device back on. [CLEAR] quits immediately back to the TI-OS homescreen from the Doors CSE desktop.

Key	Function
Arrows	Move selector
[ENTER] or [2nd]	Run program or select item
[Alpha]	Right-click
[Clear]	Quit from Doors CSE or close an open menu.
[+]/[-]	Scroll down/up on the desktop
[*]/[/]	Scroll fast down/up (2, 3, or 4 pages at a time)
[ON]	Turn calc on/off
[Y=]	Open the DCSE Menu
[Window]	Go to parent folder
Hold [ON], tap [PRGM]	Open DCSE (only from TI-OS, if "[ON] hooks" option enabled)
Hold [ON], tap [STAT]	Immediately APD (only from TI-OS, if "[ON] hooks" option enabled).

### 1.4.2 | Areas of the Screen

In the main area of the desktop are up to 16 icons representing programs or files on your calculator, accompanied by filenames of up to eight characters. You can select any compatible file to run it. If Doors CSE cannot run a file for some reason, whether due to incompatibility or corruption, it will alert you to this fact. When you finish using a program, it will return you to the Doors CSE desktop. You can also right-click on files to edit their options or create folders.

At the right side of the screen is the scrollbar. You can expedite scrolling by using the [-] and [+] keys to go one page up and one page down respectively. The lower right of the screen contains the battery power meter, and if enabled, the clock.

The bottom left of the screen contains the Doors CSE Menu, usually abbreviated as the DCSE Menu. This provides access to options and advanced features of Doors CSE. You can read more about the DCSE Menu later in this manual.

## 1.5 | Quick-Start Conclusion

You now have a working knowledge of utilizing Doors CSE and its features. You are welcome to comment, ask questions, suggest features, or just make your voice heard on the Cemetechn Forum (<http://www.cemetechn.net/forum>), or send an email to [dcsc@cemetechn.net](mailto:dcsc@cemetechn.net). Good luck with Doors CSE!

## CHAPTER 2

# INTRODUCTION & INSTALLATION

### 2.1 | A Brief Introduction to Doors CSE

Doors CSE is a shell and GUI for the TI-84 Plus C Silver Edition graphing calculator. It is a version of the popular Doors CS shell for black-and-white TI graphing calculators, namely the TI-83, TI-83+, TI-83+ Silver Edition, TI-84+, and TI-84+ Silver Edition. Put simply, Doors CSE lets you run any kind of program on your calculator, whether it is written in z80 Assembly or TI-BASIC, or needs libraries from xLIB or Celtic 2 CSE. Doors CSE is built to be extremely user-friendly, using a desktop-based interface to appeal to users used to using computers and are frustrated with confusing menus.

Doors CSE 8 is a small App, only 32KB, but it packs together many features:

- The ability to run almost any type of program or App from the Doors CSE desktop
- Assembly and BASIC libraries to make programs smaller and more powerful
- Shortcuts and improvements to make the TI-OS easier to use
- The ability to run any archived or ASM program from the TI-OS homescreen

And many others. I hope that you will get plenty of good use out of Doors CSE, and that you'll stop by <http://www.cemetech.net/forum> to chat, ask questions about Doors CSE, learn about programming for it, and check in for new versions of Doors CSE. You can also find information on Doors CSE at <http://dcs.cemetech.net>.

### 2.2 | Installing Doors CSE

Installation of Doors CSE is as simple as sending DoorsCSE.8ck to your calculator. However, feel free to read on for more detailed instructions if you need them. Also note that you can just as easily get Doors CSE 8 from a friend or classmate's calculator over a calculator-to-calculator transfer cable. However, it is recommended that you download your own copy from <http://dcs.cemetech.net> to be sure you're getting the latest version.

#### 2.2.1 | What Do I Need to Install Doors CSE?

First and foremost, you'll need a TI-84 Plus C Silver Edition color-screen graphing calculator. You will also need at least 32KB of archive free for Doors CSE itself, as well as 80 bytes of RAM for its AppVar. Finally, you'll need transfer software like TI-Connect or TiLP II, plus a mini USB cable to connect to your calculator. If all you have is the cable that connects your calculator to another calculator, you'll need to get a friend to load Doors CSE 8 on his or her calculator, then get it from them.

TI-Connect and TiLP each have their own manuals for installation. You can get TI-Connect 4.0 for Windows and for Mac OS on [Texas Instruments' website](http://www.ti.com). If you have Linux/Unix, or you



have Windows or Mac OS and you prefer an open-source software alternative, you can try [TiLP II at ticalc.org](http://ticalc.org).

If you are reading this document, chances are that you successfully unzipped the Doors CSE zip that you downloaded. If not, you'll need software such as [WinZip](#) or [7-zip](#) to unzip the files. Follow the proper steps for your program to extract at least DoorsCSE.8ck, then proceed onwards.

### 2.2.2 | Installing Doors CSE on Your Calculator

If you are using, TI-Connect, follow the section immediately after this paragraph. You can also follow the second set of instructions, which are slightly faster but more confusing for the novice TI-Connect user. If you are using TiLP II or other third-party transfer software, please follow your software's manual for transferring a program to your calculator.

#### TI-Connect Instructions

1. Run TI-Connect from your Start menu.
2. Select the "Device Explorer" button.
3. Select the proper device from the list (calculator should be plugged in)
4. Open the folder to which you extracted Doors CSE.
5. Drag and Drop the file DoorsCSE.8ck from the folder to the TI-Connect Device Explorer.
6. Follow the TI-Connect prompts to send the file to your calculator.

#### Alternate TI-Connect Instructions

1. Find the appropriate file inside the ZIP file: DoorsCSE.8ck.
2. Copy it to your desktop
3. Attach calculator and turn it on
4. Right click on file and select Send to TI Device.
5. Select appropriate connection
6. Click on Send to Device to begin transfer

## CHAPTER 3

# USAGE OVERVIEW

### 3.1 | Running Doors CSE

Launching Doors CSE is easy, and can happen one of three ways. The standard way to run Doors CSE is to press the [APPS] key on your calculator, then either use the arrows to scroll down to **DoorsCSE** and press enter, or press the number next to **DoorsCSE**, in this case the [2] key (although that may be different on your calculator depending what other applications you have installed). Doors CSE will start executing and bring you to the DCSE desktop.



*Figure 1: Running Doors CSE from the Apps menu*

Once you have set up your Doors CSE settings, you have the option of running Doors CSE from the TI-OS by holding [ON] and tapping the [PRGM] button. You can also choose to make Doors CSE start automatically when your calculator turns on. See [3.4.4, The Options Menu](#), for more information.

Note that if your calculator has reset since the last time that you used Doors CSE, or the **DCS8** AppVar has been deleted for some reason, Doors CSE will attempt to rescue your settings from the **DCS8b** AppVar. It will also try to use the **FILDSV8** AppVar to rebuild your folder structure and put your programs back into their folders, a feature called FolderRestore.

#### 3.1.1 | First Use

The first time that you run Doors CSE 8, you will be presented with a window similar to the following, introducing Doors CSE, its author, the website to get help, and the version of the Doors CSE install that you have on your calculator.



Figure 2: First-time use splash screen

## 3.2 | The Doors CSE Desktop

The Doors CSE desktop is where most of your time will be spent while using Doors CSE, other than in running programs that Doors CSE has launched directly or indirectly. It follows a straightforward layout centered around one to sixteen files, folders, or programs at a time, and includes a scrollbar on the right side of the screen and a taskbar at the bottom of the screen.



Figure 3: Sample Doors CSE desktop

### 3.2.1 | Areas of the Desktop

The Doors CSE desktop is navigated using a rectangular selection; the arrows move it around, [ENTER] or [2nd] acts like a left-click, and [ALPHA] acts like a right-click. You can select any program, file, or folder to launch it, or right-click on any program, file, or folder to open the Properties menu.

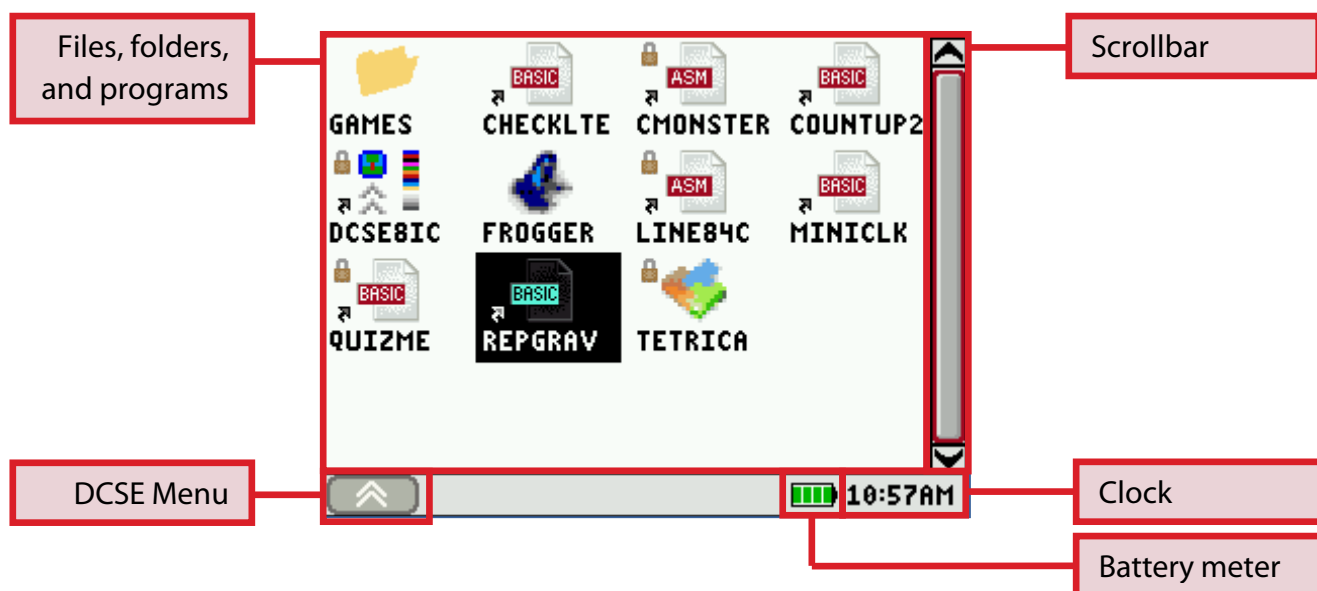


Figure 4: Detailed DCSE desktop view

### 3.2.2 | Files and Programs

Doors CSE displays programs and folders in alphabetically-sorted order, up to sixteen at a time. You can select any folder to enter it, and program to run it, and right-click on any file or folder to bring up the properties menu for that item. If a program has a small lock icon at the upper-left of its icon, it is edit-locked (although you can still open it with Doors CSE's Edit feature). If it has a small arrow at the lower-left of its icon, it is stored in ROM or Archive; otherwise, it is in RAM. You can use the Properties menu to lock or unlock programs, and to archive or unarchive programs. Edit-locking, archiving, and editing folders has no effect. You can also hide programs from the TI-OS with the Hide feature; if a program is hidden, a small H appears next to its icon in Doors CSE.

### 3.2.3 | Keyboard Shortcuts

Doors CSE has an extensive set of keyboard shortcuts, as enumerated in the table below.

Key	Function
Arrows	Move selector
[ENTER] or [2nd]	Select/run
[Alpha]	Right-click
[Clear]	Quit
[+]/[-]	Scroll down/up
[*]/[/]	Scroll fast down/up
[ON]	Turn calc on/off
[Y=]	Open the DCSE Menu
[Window]	Go to parent folder
Hold [ON], tap [PRGM]	Open DCSE
Hold [ON], tap [STAT]	Immediately APD

### 3.3 | The Properties Menu

The Properties menu, as its name implies, lets you modify the properties of files, programs, and folders, as well as delete items, create folders, edit programs, and copy and paste. If you right-click on any file or folder, you will be presented with the following menu:



Figure 5: The Properties menu

The items in the Properties menu can be used as follows:

- **Delete:** Delete the specified file or folder. If you delete a folder, all of its contents are moved to that folder's parent. Please note: **unlike in Doors CS 7, there IS confirmation when files are deleted. However, files are deleted permanently!**
- **Lock:** Toggle the current file or program's edit-lock status.
- **Archive:** Move a file or program from RAM to Archive or Archive to RAM.
- **Copy:** Create a duplicate of the current program in this folder. Doors CSE will prompt you for the name of the new program, which must be unique.



Figure 6: Filename input box for copying programs

- **Cut:** Cut the current folder or program so it can be pasted into another folder. The program or folder will stay put until you paste it.
- **Paste:** Paste the file, folder, or program that you cut into the current folder. Note that right-clicking on a folder and choosing Paste will **NOT** paste into that folder! It will paste into the current folder.

- **Folder:** Create a new folder in the current folder. A folder name input box will pop up as per Figure 6.
- **Rename:** Rename the current program.
- **Hide:** Hide the current program or file from the TI-OS.
- **New Prog:** Create a new program.
- **Edit:** Open the current program in a 10-line editor, regardless of edit-lock status or archive status.

### 3.4 | The DCSE Menu

The Doors CSE Menu or DCSE Menu lets you modify common Doors CSE settings or access help on using Doors CSE. When you press [Y=] ([F1]), the DCSE Menu will appear. Press [CLEAR] to collapse it again.

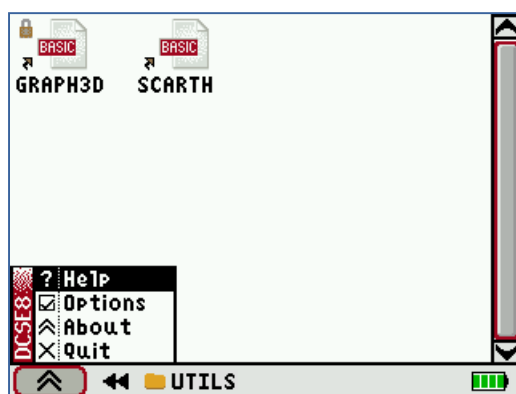


Figure 7: The DCSE Menu

Click any item to open the window for that item. You can also press [CLEAR] to immediately quit from Doors CSE, just as if you were on the desktop.

#### 3.4.1 | The Help Menu

By popular demand from users and beta-testers, Doors CSE 8 contains a Help Menu with information on keyboard shortcuts, BASIC library support, the URL for full Doors CSE documentation, and the URL to ask for help with Doors CSE.



Figure 8: The Help menu

### 3.4.2 | The Options Window

All Doors CSE settings and options can be modified from the Options menu. Press [ENTER] or [2nd] on any checkbox to toggle its status, and [CLEAR] to save your changes.



Figure 9: The Options Window

- **Show Apps folder:** If checked, the Doors CSE desktop's main folder will have an Apps folder. The Apps inside can be run directly from Doors CSE. (*Added in DCSE 8.1*)
- **Enable HomeRun feature:** If checked, Doors CSE will handle running programs from the TI-OS homescreen. This means that you can run archived programs without unarchiving them, and ASM programs without the Asm( token.
- **Enable Hybrid BASIC libraries:** Doors CSE contains full support for xLIBC and Celtic 2 CSE. If checked, these libraries will be available to TI-BASIC programs.
- **Launch Doors CSE with [ON][PRGM]:** If checked, you can hold [ON] and tap [PRGM] from the TI-OS to quickly launch Doors CS. You can also hold [ON] and tap [STAT] from the TI-OS to immediately APD: in other words, you will be exactly where you were when you turn the calculator back on. This is useful, for example, if you are editing a long BASIC program and don't want to lose your place.
- **Always launch Doors CSE:** If this box is checked, Doors CSE will launch immediately when you turn on your calculator.
- **Enable Lowercase:** If this checkbox is enabled, you can press [ALPHA] twice while in the TI-OS to type lowercase letters.
- **Display Clock:** Display or hide the clock on the Doors CSE taskbar.
- **Improve BASIC editor:** Add editing of archived programs, fast ALPHA-scrolling, and full-screen editing to the TI-OS's TI-BASIC editor.

### 3.4.3 | The About Menu

The About window is a duplicate of the window shown when Doors CSE first launches. It contains the author's name, the current DCSE version, and the URL of Cemetech, to which you should go if you need help with Doors CSE.

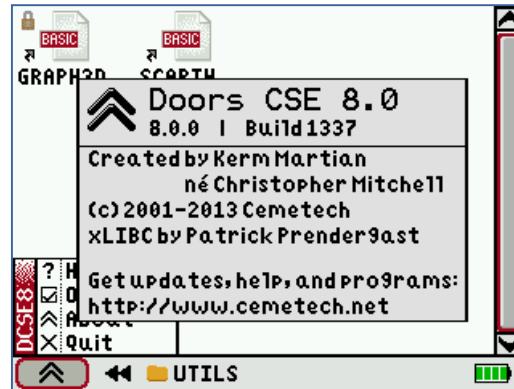


Figure 10: The About Menu

### 3.5 | Running Programs from the TI-OS Homescreen

Doors CSE 8 contains a feature called Homerun that lets you run BASIC and ASM programs of any type, including Doors CSE and nostub, and any status, including archived or locked, directly from the TI-OS homescreen. The feature is enabled if you check the HomeRun option in the Options menu. Simply go to the Program menu of the TI-OS and run a program as if it was an unarchived BASIC program, regardless of its type and status, and Doors CSE will take care of the rest.



## CHAPTER 4

# FREQUENTLY-ASKED QUESTIONS

### What does DCS / Doors CS / DCSE / Doors CSE stand for?

DCS or Doors CS stands for "Doors Calculator Shell." Many other TI shells call themselves "OS", such as MirageOS and CrunchyOS, but this is a misnomer. When you use any Application, the TI-OS is still the operating system, and Doors CS or MirageOS or CrunchyOS is the shell, hence Calculator Shell.

Whereas Doors CS is for the black-and-white TI-83 Plus and TI-84 Plus calculators, Doors CSE (DCSE) is for the color-screen TI-84 Plus C Silver Edition. "CSE" stands for Color Screen Edition, Color Silver Edition, or Calculator Shell Enhanced.

### Where can I get more information/help with Doors CSE?

You can read more documentation as well as access the full Doors CSE Software Developers' Kit at <http://dcs.cemetech.net>. You can ask questions and get help at <http://www.cemetech.net/forum>.

### Doors CSE should have [feature]. Why doesn't it?

Because you didn't come to the Cemetech forum and suggest it. <http://www.cemetech.net/forum> should be your next destination.

### I want to make programs for Doors CSE.

Great! Whether you're a BASIC or assembly programmer, Doors CSE has tons of features to offer you over programming with just the TI-OS or for another shell. Doors CSE lets BASIC programmers add icons, hide subprograms, and access all of the functionality of xLIBC and Celtic 2 CSE without needing any of those applications on the user's calculator. Doors CSE offers ASM programmers a huge set of libraries, Intelligent Writeback and much more.

You can read about all the different programming features that Doors CSE offers at <http://dcs.cemetech.net>. You can ask questions about writing programs on the Cemetech forum at <http://www.cemetech.net/forum>.

### Where can I download games and programs?

You can get tons of programs at games for Doors CSE at <http://www.cemetech.net/programs/84pcse>. However, the largest repository of programs and games for TI calculators is at ticalc.org: <http://www.ticalc.org/pub/84pluscse/>.

## CHAPTER 5

# FEATURES AND SPECIFICATIONS

### 5.1 | Specifications

- **Source Language** z80 assembly for Brass
- **Compiled Format** z80 machine language
- **Total Size (Unassembled)** ~337KB, 30 source files
- **Total Size (Assembled)** 32KB, 1 8ck Intel-coded hex file

### 5.2 | List of Features

#### 5.2.1 | General Doors CSE 8 Shell Features

- **Shell and GUI** for managing and running any available BASIC and ASM program on TI graphing calculators as well as Apps on TI-84+CSE calculators.
- **Selection-based interface** is intuitive for modern computer users and calculator enthusiasts alike.
- **Rock-solid stability** from extensive community beta-testing.
- Powerful built-in **libraries for ASM and BASIC** programmers.
- **Folder-based** organization system lets you find programs quickly and easily.
- Built-in **file management tools** make renaming, copying, deleting, locking, archiving, and hiding a breeze.
- Built-in 10-line **BASIC editor** can even edit archived and locked BASIC programs
- Extensive **keyboard shortcuts** for power users.
- Redundancy and **backup** systems restore your folder organization and preferences should your calculator crash.
- **TI-OS integration** adds features like running any program directly from the homescreen, keyboard shortcuts to APD or launch Doors CSE, and more.
- Wide **compatibility** with existing programs and features.
- In-shell **battery meter** and **clock**.
- Hover over programs to see their size and description with the **InfoPop** feature.

#### 5.2.2 | Program-Related Features

- **Intelligent Writeback** extends your flash ROM's lifetime and reduces Garbage Collect messages by only overwriting archived programs after execution if they have changed.
- **HomeRun** feature can run any BASIC or ASM program, archived, locked, or otherwise, from the TI-OS homescreen simply by executing prgmNAME.
- **Instant Goto** replaces the TI-OS' slow Goto feature, and uses Doors CSE's 10-line BASIC editor.
- Archived programs are kept in ROM during execution, so ASM program crashes will not delete the program.

### 5.2.3 | Customization Features

- Rename any program, including ASM programs, from within Doors CS
- Users can easily add an icon to any existing BASIC program

### 5.2.4 | Compatibility

- Runs nostub (TI-OS) ASM programs
- Has built-in BASIC libraries for BASIC programs using xLIBC and Celtic 2 CSE.

### 5.2.5 | Features for Programmers

- Full set of libraries to support new and existing programs.
- Full compatibility with popular xLIBC library without needing to keep the 16KB app on your calculator.
- Full compatibility with popular Celtic 2 CSE libraries, also built-into Doors CSE 8 and optimized for speed and stability.
- Simple addition of icons and descriptions to programs without breaking compatibility or functionality
- Hide programs from Doors CS, or specify a set of subprograms that are automatically unarchived when a BASIC program is run.
- TI-BASIC editor improvements give you ten lines of code, fast scrolling, editing of archived programs, and more.

## CHAPTER 6

### FURTHER READING

The most important place to get information about Doors CSE is the Doors CS Wiki, <http://dcs.cemetech.net/>. The second most important place is the Cemetech website and the Cemetech forums, where news about new versions, features, and programs is posted, and where users and programmers alike can ask questions about the shell. The front page is <http://www.cemetech.net>, and the Doors CSE subforum can be found at <http://www.cemetech.net/forum/viewforum.php?f=9>. General information about programming in z80 ASM and in TI-BASIC can be found at <http://www.ticalc.org>, and programmers are encouraged to ask programming questions and request advice on tutorials, project ideas, etc on the Cemetech forum.

As a last resort, you may hunt down my email address and drop me a line, but be advised that I will answer questions much faster when they're posted on the Cemetech forum, as I keep my eye on that much more frequently than I do my email.

Thanks for browsing this document, good luck with your TI programming endeavors, and I hope I get to hear from you on the Cemetech forum (<http://www.cemetech.net/forum>).  
Cheers!

## APPENDIX A

### LICENSE

Doors CSE is updated regularly to fix any reported bugs and compatibility issues, optimize size, and add new features. Doors CS has reached development stasis, and will only be updated if critical bugs are found. You can find all Doors CS and Doors CSE news at the Cemotech homepage, <http://www.cemotech.net>. If you sign up as a Cemotech user, you can view the project page with beta editions and more at <http://dcs.cemotech.net>. You can download this and all future editions of Doors CSE at the Cemotech file archives or at the link above. If you have any comments, questions, complaints, or compliments on Doors CSE, feel free to send me an email at [kerm\\_martian@yahoo.com](mailto:kerm_martian@yahoo.com) with the phrase "Doors CSE" in the subject line.

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#### A.1| Preamble

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