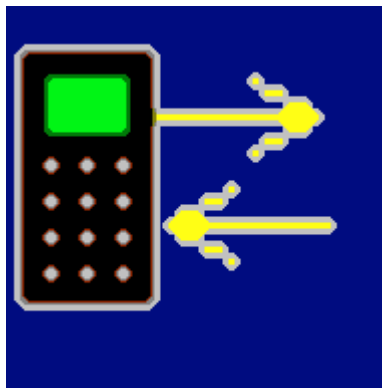


# DiveTerm™

Windows Application Software

## Technical Reference Manual



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## 1.0. Introduction

The DiveTerm™ utility is used to download new applications (i.e. SmartDive, DT-Test) to DiveTracker™ stations and can also be used to perform several other 'system administration' functions. This manual describes in detail when and how to use DiveTerm™. DiveTerm™ requires MS Windows 95 or NT to run. New versions of DiveTerm™ are freely available on the Desert Star web site: <http://www.desertstar.com>.

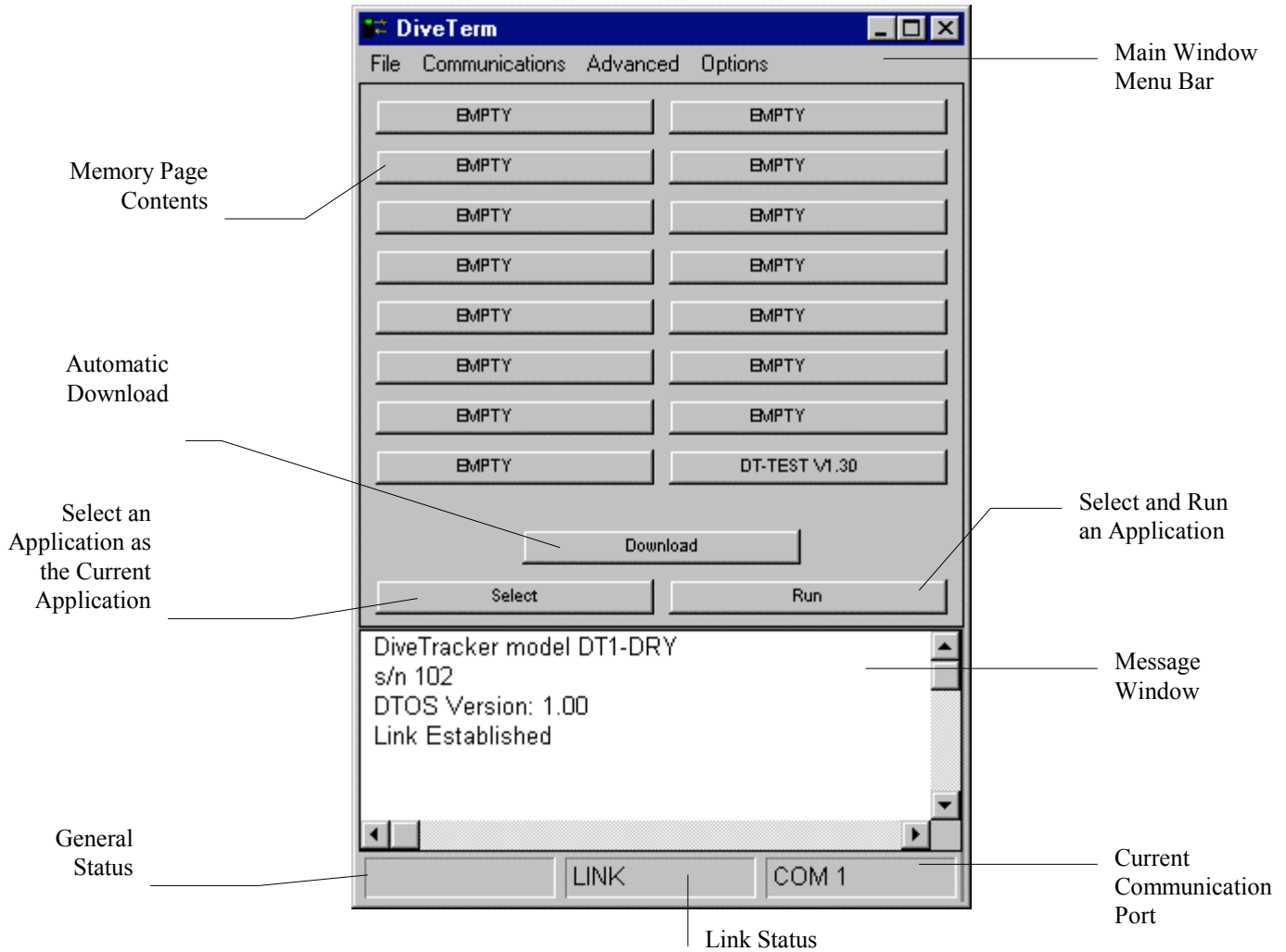


Figure 1.0: DiveTerm™ Main Screen; Link Active

## 2.0. Important Terms

This section covers terms that will be used throughout this manual. Please look at any that are unfamiliar to you.

**Application** - In this manual an application is a file that defines the operation of the DiveTracker™ station. DiveTerm™ is used to download applications to DiveTracker™ stations

Some applications are:

SmartDive™ : used for general navigation, communications, observation recording, etc.

DT-Test™: used to perform diagnostics on a station

Amodem™: used to make a DiveTracker act like an acoustic modem

**Configuration File** - A file that is used to set certain parameters that define the operation of the application SmartDive™

**Current Application** - This is the application that is loaded and used when the station is reset. When an application is downloaded it is automatically selected as the current application.

**Download** - Downloading in this manual refers to the act of copying a file from a PC to the DiveTracker™ station. This is in contrast to *Uploading* where something is copied from the DiveTracker™ station. DiveTerm™ is used to *download* applications to the DiveTracker™ stations and to *upload* observation records from the DiveTracker™ station to the PC.

**FLASH Memory** - The type of memory used to store applications. It is divided into memory pages.

**Memory Page** - A memory page is the smallest divisible unit of application storage on a DiveTracker™ station. The buttons directly above the **Message Window** show the contents of each Memory Page.

Some applications take up more than one Memory Page, in fact SmartDive™ takes up 15 Memory Pages. In this case successive Memory Pages are used, these are denoted by a “\*\*\*\*” symbol.

All memory pages must be erased at the same time. If there are not enough consecutive memory pages for an application all memory pages must be erased.

## 3.0. Establishing A Link

Before any task can be accomplished DiveTerm™ must “connect” with the external station. When DiveTerm™ is first started the words “No Link, Please Reset Station” will be in the **Message Window** and “No Link” will be shown in the **Link Status** window at the bottom of the main screen. All of the buttons and Advanced commands will be grayed out, in other words not usable, until a Link has been established.

The current communication port being used is shown in the **Current Communication Port** window.

Select the serial port that you wish to use by clicking on **Communications** on the **Menu Bar** and selecting the desired port. The port identified in the **Current Communication Port** window should change to the one that was selected.

Make sure the station is connected to the proper serial port.

When a station is connected to the proper serial port DiveTerm™ will automatically detect when the station has been turned on or reset. The **Link Status** window should now say "Link" and the **Message** window will now show the model, serial number and operating system version of the station (see Figure 1.0)

DiveTerm™ is now connected to the external station.

All usable controls will now be made active.

#### Establishing Communications

- Select the proper serial port from the **Communications** menu.
- Make sure the station is connected to the selected serial port.
- Turn on or reset the station to establish the link.

## 3.0. Downloading An Application

This section describes the two methods that can be used to download applications to a station. The first method: **Automatic Download** is recommended for virtually all users.

#### Advise:

Downloading an application is different than downloading a configuration file. The configuration file is used to set certain parameters that define the operation of SmartDive™, which is an application.

#### Advise:

When using the system for navigation, make sure that SmartDive™ is selected as the current application on all stations!

## 3.1. Automatic Downloading

To begin an automatic download press the **Download** button below the **Message** window.

A file browser will pop-up. Choose the application that you wish to download.

If there are not enough consecutive memory pages for the application you will be asked if you wish to erase the memory. Press **Yes** to continue the download process. Pressing **No** will cancel the download. If you erase the FLASH, you will have to re-download all applications that you wish to use. Erasure takes about 5 minutes to complete.

DiveTerm™ will automatically figure out into which memory pages the application should be placed. The download will then take place. Text in the **Message** window will state what page is being downloaded and what memory locations are being used.

The percentage downloaded is displayed in the **General Status** window. When the download is completed the **Memory Page Contents** buttons will be updated to reflect the current contents of the DiveTracker™ station's memory.

The application that was just downloaded will be selected as the current application.

- Once the DiveTerm screen appears, select the appropriate COM port in the **Communications** sub-menu. The currently selected COM port is indicated at the bottom right of the screen on the status line.
- Make sure that the station is connected to the proper serial port.
- Turn on or Reset the station that you wish to download to.
- Within no more than five seconds, DiveTerm status indicator, at the bottom middle of the status line, should change from NO LINK to LINK and you should see the screen shown in figure 6.1.
- It is possible that 'garbage' in the serial communication line will prevent DiveTerm™ from detecting the connected station. If this should happen, switch the external station OFF and ON again or press the RESET key of the surface tracking module. After waiting 2 to 4 seconds, DiveTerm™ should detect the station.
- Device drivers are stored in each stations FLASH memory, a type of solid state memory (like RAM) that does not loose its information when power is switched off. The FLASH memory is organized into sixteen pages (0..15) which are listed on the DiveTerm™ screen. A device driver may occupy several pages. The name of the device driver is listed in the first page. Following pages are indicated by '\*\*\*'. If a page does not contain any information, it is listed as <empty>.
- To download a new version of an application, press the **Download** button and select the appropriate file.
- The memory probably already contained code - the older version of the device driver which you are replacing. Consequently, DiveTerm™ will ask you if you want to replace that code. Answer this question with yes. **Note:** The FLASH memory can only be erased as a whole, i.e. once you erase any page, all pages will be erased. So, you will have to re-install all device drivers (typically SmartDive and DT-TEST) which you are using.
- FLASH erasure and re-programming will proceed. FLASH erasure takes about five minutes. The programming of each page takes about 90 seconds.

- The device driver download is now completed. Exit DiveTerm™. Switch the connected station OFF or RESET the surface tracking module.
- After re-activating the station, the new application will be active.

### Installing Applications On DiveTracker™ Stations

**Advise:**

**If you wish to use a different application than the one which was most recently downloaded you must select it as the current application. To select an application as the current application press the *Select* button and chose the desired application on the pop-up window**

## 3.2. Manual Downloading

Manual Downloading allows you to place applications in specific memory pages. Note that multi-page applications will ALWAYS use consecutive memory pages.

To begin a manual download press the **Memory Page Contents** button for the page that you want to place the first memory page of the application.

A file browser will pop-up. Choose the application that you wish to download.

**Advise:**

**Make sure that there are enough consecutive memory pages for the application. DiveTerm™ will only check to make sure that the first page is empty. If there are not enough pages for the application, the download will fail part way through and you will have to re-download the application**

The percentage downloaded is displayed in the **General Status** window. When the download is completed the **Memory Page Contents** buttons will be updated to reflect the current contents of the DiveTracker™ station's memory.

The application that was just downloaded will be selected as the current application.

**Advise:**

**If you wish to use a different application than the one which was most recently downloaded you must select it as the current application. To select an application as the current application press the *Select* button and chose the desired application on the pop-up window**

## 4.0. Running Specific Applications

DiveTerm™ can be used to run and interact with applications on DiveTracker™ stations. The most common use is to run the DT-Test™ diagnostic program, however it can also be used to run SmartDive™ and download configuration files to stations running SmartDive™.

To run an application press the **RUN** button near the bottom of the main screen and select the application you wish to run from the pop-up window. An application must be loaded on the station for it to be run.

A pop-up terminal window will appear as soon as you choose the application.

When you are finished running an application close the terminal window. You will have to reset the station if you require further interaction via DiveTerm™.

## 4.1. Running DT-Test™

DT-Test™ is used to perform a variety of hardware tests on your DiveTracker™ stations. Figure 4.0 shows the DiveTerm™ terminal window that appears when DT-Test™ is run

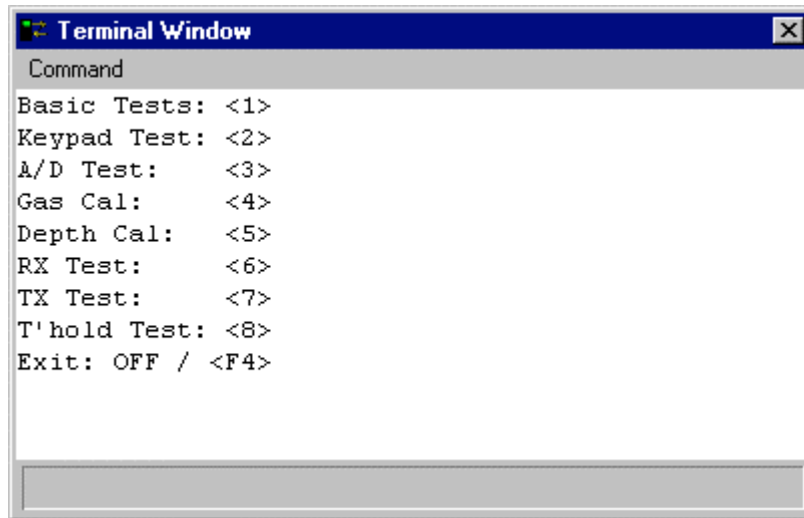


Figure 4.0: DiveTerm Terminal Window Running DT-Test™

The numbers inside the <> marks denote the key to press to run the specific test. Consult the DT-Test™ documentation or contact Desert Start for more information on the various tests.

DT-Test™ can also be used to send and retrieve the depth sensor calibration table from the DiveTracker™ station. Desert Star maintains a copy of all sensor calibration tables. If for some reason the table on your station became corrupted you could repair it using DT-Test™.

## 4.2. Running SmartDive™

DiveTerm™ can be used to run SmartDive™ in order to download a configuration file to a DiveTracker™ station.

NOTE: Downloading a configuration file is different than downloading an application. A configuration file can only be downloaded while running SmartDive™. Figure 4.1 shows the terminal window while SmartDive™ is running.

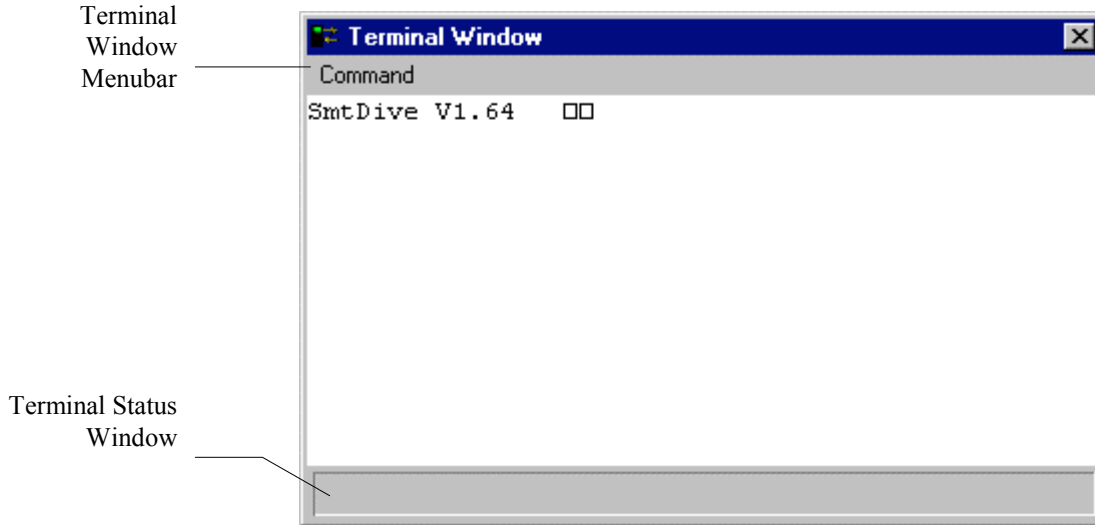


Figure 4.1: DiveTerm™ Terminal Window Running SmartDive™

### 4.2.1. Running SmartDive™ to Retrieve Data

DiveTerm™ is used to retrieve data that has been recorded on the DiveTracker™ station. This can be data entered manually (such as observation records made during a survey) or automatically logged data (such as temperature sensor data).

To download (retrieve) data select **Command/Read 'Tape' Memory** from the **Terminal Window Menubar** while running SmartDive™. Once a save file name has been selected DiveTerm™ will begin downloading the data. The message "DOWNLOADING" will flash in the **Terminal Status** window until the download is complete.

The downloaded data is in a binary format, use the separate application **Convert** to transform the data into a human readable format.

### 4.2.2. Running SmartDive™ to Configure Stations

When using DiveTracker™ stations in conjunction with SmartDive™ it is necessary to configure the stations prior to operations. If you are using a surface station with DiveBase™ it is recommended that you use DiveBase™ for the creation of configuration files, and the configuring of stations.

It is first necessary to create a configuration file. Select **File/Create A New Configuration File** from the **Main Window Menubar** to create a new configuration file. Select **File/Edit A Configuration File** from the **Main Window Menubar** to edit a configuration file that was previously created.

There are two sub-categories for creating and editing configuration files. Simple create/edit asks a minimum amount of information necessary for operation. Advanced permits you to tweak any and all parameters. Simple create/edit is suitable for 90% of all operations.

Please see your system operators manual or the configuration file appendix for more information.

Once a configuration file has been created it can be downloaded to each station being used.

While running SmartDive™ select **Command/Configure Station** from the **Terminal Window Menubar**. Select the configuration file to download. The download control screen will be shown (see Figure 4.2)

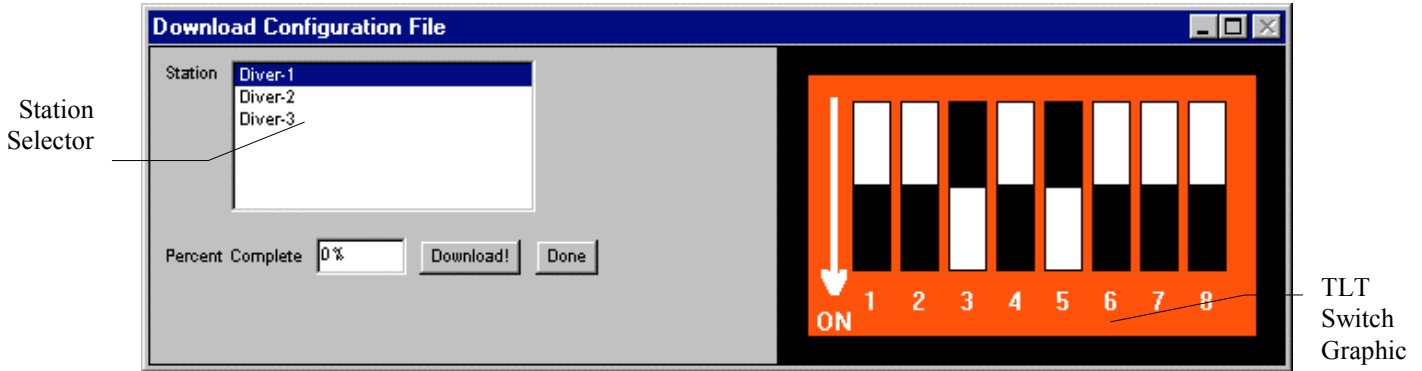


Figure 4.1: DiveTerm™ Download Screen

Select the station to configure by clicking on the name in the **Station Selector**. Press The **Download** button. The **Percent Complete** field will increase to 100% as the configuration file is downloaded to the station. The next station in the **Station Selector** will be hi-lighted automatically. Connect that station to the **SAME** serial port and press the **Download** button to configure it. It is possible to configure all the stations from here, it is not necessary to restart. Be sure that SmartDive™ is running on all of them!

The **TLT Switch Graphic** displays how the DIP-switch on TLT-1 or CLT-1 station should be set. If the station being configured is not a TLT-1 or CLT-1 ignore the graphic.

## 5.0. Other DiveTerm™ Controls

There are three other controls for DiveTerm™ that are not described elsewhere.

### Select Button:

The **Select** button on the main window is used to select an application as the current application on a DiveTracker™ stations.

An example of when this would be used:

Both SmartDive™ and DT-Test™ are in FLASH memory on a station. You run DT-Test™ using DiveTerm™ to perform a diagnostic, and everything is fine. You now want to start your operation, so you press the **Select** button to make SmartDive™ the current application.

### Use Metric Units:

### Use American Units:

Choose **Options/Use Metric Units** from the **Main Window Menubar** to enter data on the configuration screens in metric units (meters, degrees Celsius, etc.)

Choose **Options/Use American Units** from the **Main Window Menubar** to enter data on the configuration screens in American units (ft, inch, degrees Fahrenheit, etc.)

### **Erase Flash:**

Choose **Advanced/Erase Flash** from the **Main Window Menubar** to erase the FLASH memory manually. There isn't really a need for this since DiveTerm™ will prompt you whenever the FLASH needs to be erased.

### **Set Station Clock:**

Choose **Advanced/Erase Flash** from the **Main Window Menubar** to set the realtime clock on the connected DiveTracker™ station. The station's clock will be set to the clock in the PC.