



Users Guide

***Shadow Tracker™ Professional
Modules Manual
Time, Inventory, Export, EVM***



Minimum System Requirements

Windows® 95, 98, NT (SP 6), 2000 (SP 3), ME
PentiumII® - 350 Mhz (or higher recommended)
32 MB min. (64 MB recommended)
850 MB of free HD space
CD ROM
SVGA Monitor
Windows® compatible printer (color recommended)
Open 9 pin COM port
Shadow Tracker™ Professional software

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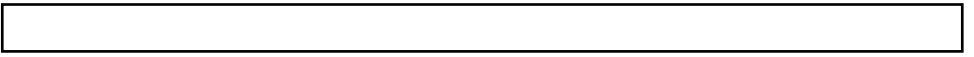
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Chapter 1

The Inventory Module

The Inventory Module is used to monitor inventory used in the field and in relation to your customers. Inventory transactions are documented on-site using the Time Traveler™ keypad. When the Shadow Tracker™ unit is downloaded these transactions are added as Unprocessed Activity. From here, they are reconciled and processed (current inventory stock is updated) to show the exact distribution of all materials expended for a job.

Contents of this Chapter

- **Adding Inventory Records**
- **Approving New Inventory Transactions**
- **Processing New Inventory Transactions**
- **Viewing Approved Inventory Transactions**
- **Export**

Accessing the Inventory Module


To access the Inventory Module click **File >> Open >> Inventory Transactions** from the menu.

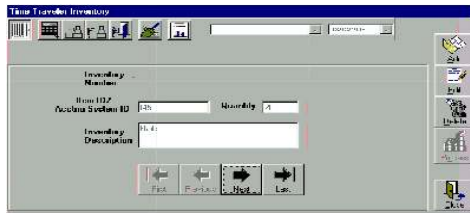
The Inventory and Time Modules require a Week Ending parameter be set before you can begin working. The Week Ending parameter will denote the workweek schedule for your company. If you have set up Shadow Tracker™ Professional as a Client/Server install, the Week Ending parameter will be set by the System or Network Administrator from the Base unit or network server. If you have set up Shadow Tracker™ Professional as a StandAlone install, you will be prompted to set the Week Ending Parameter the first time you open either of these modules.

NOTE: Once set, this parameter cannot be changed.



Adding Records

Each inventory record consists of an **inventory number**, an **inventory item id**, a **description** and a **stock quantity**. When you first open the Inventory Module the inventory records window will become visible. From here you add, edit or delete inventory records. You can move through these records using the navigation buttons available. To access these inventory records at anytime, click the barcode button  from the toolbar.

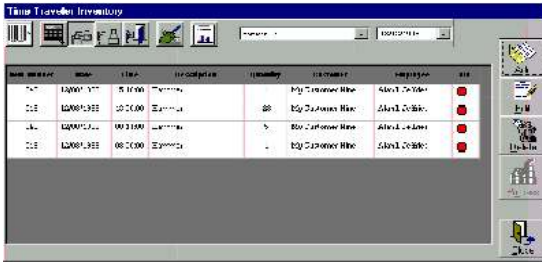


If you wish, Shadow Tracker™ will track your inventory stock on hand. When an inventory record is added, the quantity field should match the company's quantity on hand. When inventory transactions are processed, the quantity of each inventory record is re-calculated. Shadow Tracker™ will not report a negative stock balance. Therefore, once an items stock is depleted, the quantity field is ignored. If you do not wish to use Shadow Tracker™ for tracking inventory stock, enter a zero value in the quantity field of **each** inventory record.

Reconciling New Transactions

Each time a tracking unit is downloaded, if the unit contains recorded inventory transactions, these transactions are added to the Shadow Tracker™ database as Unprocessed Inventory. You may view these newly added transactions by clicking the keypad button on the toolbar.

As transactions are downloaded, each transaction is validated. This validation process compares the new transactions to the actual records in the database. This validation is necessary because there is always the potential for user input errors when entering data into the Time Traveler™ keypad.



Unreconciled inventory transactions are added with the approved **OK** column marked red. A red mark indicates the record has not yet been reviewed by you. Each transaction should be reviewed for accuracy before it is marked for approval.



Notice that record number three does not have a valid inventory item or employee. Instead, the actual keypad entry is displayed.

Modify a transaction by selecting the record with your mouse and clicking the **Edit** button. An area will appear at the bottom of the window where you should make the necessary modifications. Click **Save** when done.

Approving New Transactions

When you have made the necessary edit to your transaction, mark it approved by double-clicking the **OK** field changing the icon from red to green. That transaction is now ready for processing against the company inventory records.

Processing New Transactions

Processing inventory transactions updates the in-stock quantities and moves the transaction into Approved Inventory. Only inventory transactions that contain valid data and are marked with a green icon will be considered for the processing function. Therefore, before you can create a Report to view your new inventory, you must process the transactions first.

Process inventory transactions by clicking the **Process** button. All records that clear validation will



Viewing Approved Transactions

Processed transactions can be sorted by *inventory item*, *customer* or *employee*. Select the appropriate button on the toolbar for the view you want:



Inventory Item



Employee



Customer



Clears the grid

Note: You can view the transactions on-screen or create printed reports. If a transaction must be edited and/or deleted you will have to manually update the quantity of that inventory record (unless you are not tracking quantity). Only during download is inventory quantity updated.

Exporting Transactions

When inventory transactions are processed they are again displayed with the approval **OK** field set to unapproved or red. This allows you the opportunity to once again review your transactions before you export them for further accounting needs.

Mark inventory transactions ready for export by double-clicking the **OK** field changing the icon from red to green. Only those items with a green icon will be exported to an ASCII file. Once exported, the icon is changed to a red "X", which indicates the transaction is locked and cannot be modified. At this point, you will probably want to delete those records that were exported. (Refer to the Export Module for more information)

Chapter 2

The Time Module

The Shadow Tracker™ Time Module and Time Traveler™ allow you to use your Shadow Tracker™ field unit as a portable time clock. You can easily keep records of an employees' time, job activities, inventory usage for job costing, cash receipts and vehicle odometer readings in addition to the GPS track activity you are already gathering. These records are downloaded to your Shadow Tracker™ system at the same time you download GPS data. Shadow Tracker™ Time takes the keyed time information and displays it for easy analysis. Those records can then be viewed, edited, reported and even exported as needed.

Contents of this Chapter

- **Downloading Time Data**
- **New Activity**
- **Unprocessed Transactions**
- **Processing Transactions**
- **Employee Time Transactions**
- **Customer/Job Transactions**
- **Vehicle Odometer Transactions**
- **Approving Transactions**

Accessing the Time Module

To access the Time Module click **File >> Open >> Time Transactions** from the menu.

The Inventory and Time Modules require a Week Ending parameter be set before you can begin working. The Week Ending parameter will denote the workweek schedule for your company. If you have set up Shadow Tracker™ Professional as a Client/Server install, the Week Ending parameter will be set by the System or Network Administrator from the Base unit or network server. If you have set up Shadow Tracker™ Professional as a StandAlone install, you will be prompted to set the Week Ending Parameter the first time you open either of these modules.

NOTE: Once set, this parameter cannot be changed.



Downloading Time Data

Each time a tracking unit is downloaded and includes time transactions they are added to the Shadow Tracker™ database. As transactions are downloaded, each transaction is validated. The validation process just means that the entered data is compared to actual records in the database. Because there is always a potential for data input errors whenever users enter information using the Time Traveler™ keypad, this validation is necessary.

Time transactions that pass validation are added automatically as New Activity. If the transaction does not pass validation it is added to the Unprocessed Transactions area. These two areas are described in detail below:

New Activity - All validated time transactions that have not been approved for export.

Unprocessed Transactions - Transactions that could not be validated.

New Activity



This area is designed to give you a central location to view all of your keypad entries before approval for export. When using the Time Traveler™ keypad entries that can be added are:

- Time In
- Time Out
- Job In
- Job Out
- Odometer Transactions

New Activity will include all of these types of input data. New Activity is an area setup for **viewing** these transactions. You cannot modify or adjust records in this area. Once transactions reflect approval, they are removed as New Activity and will only be viewable as Employee Time, Customer Job or Vehicle Odometer transactions.

Click the **New Activity** button from the toolbar. A grid will populate with all of the validated, but unapproved keypad entries in date/time order.

To merge duplicate fields, Click on the title bar in NewActivity .

The screenshot shows the 'Time Navigator' application window. The title bar reads 'Time Navigator'. Below the title bar is a toolbar with various icons and a date/time field showing '1/11/00'. The main area contains a table titled 'New Activity for 01/04/1998 thru 01/04/1998'. The table has columns for Date, Time, Action, Employee, Distance, Vehicle, and Odometer. The data rows show various activities like TIME IN, Odometer, TIME OUT, and JOE IN for different employees and vehicles.

Date	Time	Action	Employee	Distance	Vehicle	Odometer
01/04/1998	7:23:00	TIME IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/04/1998	8:30:00	Odometer	Gas, Lees	Mi Odometer-Cities	450-177	55300
01/04/1998	8:33:00	TIME IN	Gas, D'Agk	Mi Odometer-Cities	450-177	
01/04/1998	8:36:42	TIME IN	Hell Swgk	Mi Odometer-Cities	450-177	
01/04/1998	8:41:00	JOE IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/04/1998	11:30:00	Odometer	Gas, Lees	Mi Odometer-Cities	450-177	55100
01/04/1998	11:37:17	-HC CL	Gas, Lees	Mi Odometer-Cities	450-177	
01/04/1998	12:35:02	TIME IN	Gas, D'Agk	Mi Odometer-Cities	450-177	
01/04/1998	17:11:25	-HC CL	Asyl Jettier	Mi Odometer-Cities	450-177	
01/04/1998	17:11:45	JOE IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/04/1998	17:11:55	JOE IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	8:00:00	TIME IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	8:00:00	JOE IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	8:00:25	TIME IN	Asyl Jettier	Mi Odometer-Cities	450-177	
01/05/1998	8:00:00	Odometer	Gas, Lees	Mi Odometer-Cities	450-177	55100
01/05/1998	14:30:00	-HC CL	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	14:30:00	Odometer	Gas, Lees	Mi Odometer-Cities	450-177	55150
01/05/1998	16:30:00	JOE IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	17:30:55	-HC CL	Asyl Jettier	Mi Odometer-Cities	450-177	
01/05/1998	8:00:00	TIME IN	Gas, Lees	Mi Odometer-Cities	450-177	
01/05/1998	8:04:25	TIME IN	Asyl Jettier	Mi Odometer-Cities	450-177	


Note: It is recommended that your company devise a policy determining how and when keypad entries should be made. Having a uniform format of data input will make interpretation of the data much easier.

Unprocessed Transactions



As mentioned earlier, upon download Shadow Tracker™ attempts to validate keyed entries against database records. Unprocessed transactions are a result of:

1. The information was not keyed correctly into the Time Traveler™ keypad, or
2. the transactions do not match a valid vehicle issue record.

Reconcile these transactions and process them into New Activity by correcting the errors. To view these transactions, select the week ending date and click the **Unprocessed Transactions** button from the toolbar. 

Unprocessed transactions exist due to invalid data. Either the data received from the keypad is wrong or the database is incomplete. When a transaction is downloaded they are associated with a driver and/or a vehicle. When each entry is made into the keypad, the user is asked to input some identifying information such as the Employee ID, Customer ID, Job ID, Inventory ID, Quantity, Odometer Reading, etc. If any of this information was entered incorrectly, it must be reconciled. The Shadow Tracker™ Time Module will display each keypad entry **exactly** as it was entered into the keypad.



To modify a time transaction:

1. From the Unprocessed grid click the **Edit** button. You are now in edit mode. Notice the indicator at the top of the screen.
2. Select the transactions by clicking on it with your mouse. The transaction will populate in an editing panel. Field values that could not be matched with your database will be left blank.

Action	Date	Issuing Vehicle	Customer Name
Time	Issuing Driver	Recording Employee	

3. Make the appropriate modifications for each field.

4. When you are sure the correct data has been entered click the **Save Changes** button. Once you have opened a transaction for editing it must be reconciled in full before you can save it. To cancel changes to a transaction before saving, click the **Cancel** button.

Deleting a transaction from the Unprocessed transactions area permanently removes it from the database.

Note: Validation of the vehicle/driver relationship is done when transactions are processed, not when you save modifications to transactions.

Processing Transactions



Once you have reconciled all unprocessed transactions, you are ready to move them into New Activity. Do this by clicking the **Process** button. The Shadow Tracker™ Time Module will then validate each field for pass or fail. Transactions that pass validation are added as New Activity and removed from the Unprocessed grid. Those transactions which do not pass validation are not removed and will require further review.

As transactions are processed they become available as New Activity, Employee Time, Customer Job or Vehicle Odometer transactions.

Employee Time transactions - Validated Time transactions by employee and week ending date.

Customer/Job transactions - Validated Job transactions by customer and week ending date.

Vehicle Odometer transactions - Validated Odometer transactions by vehicle and week ending date.

Once transactions are processed they are ready for review before they are exported or analyzed by the reporting module. To indicate the record has passed approval mark the **OK** field green. All transactions are added with no approval (Red icon), once approved the **OK** field is changed to green.

Employee Time Transactions



Employee Time is where you adjust and approve employee time transactions. To view, click the **Employee Time Transactions** button.

Select the week ending date and employee name from the drop-down lists. If time transactions exist for these choices, they will populate in the grid.

Date	Time	Action	Customer	Issued Vehicle	OK
01-04-09	7:22:00	TIME IN	M, D, Alomer Coles	452-17 - effie; Alar	
01-04-09	11:21:17	MC CL	M, D, Alomer Coles	452-17 - effie; Alar	
01-05-09	0:00:00	TIME IN	M, D, Alomer Coles	452-17 - effie; Alar	
01-05-09	14:00:00	MC CL	M, D, Alomer Coles	452-17 - effie; Alar	
01-05-09	0:00:00	TIME IN	M, D, Alomer Coles	452-17 - effie; Alar	
01-05-09	19:36:00	MC CL	M, D, Alomer Coles	452-17 - effie; Alar	
01-07-09	10:36:23	TIME IN	M, D, Alomer Coles	452-17 - effie; Alar	
01-07-09	11:36:23	MC CL	M, D, Alomer Coles	452-17 - effie; Alar	

Employee Time consists of all Time In and Time Out keypad entries. These transactions are sorted in the grid by the entry date and time. From this grid you can add, modify, delete, approve and disapprove employee time transactions.


Reconciling and Modifying Time Transactions

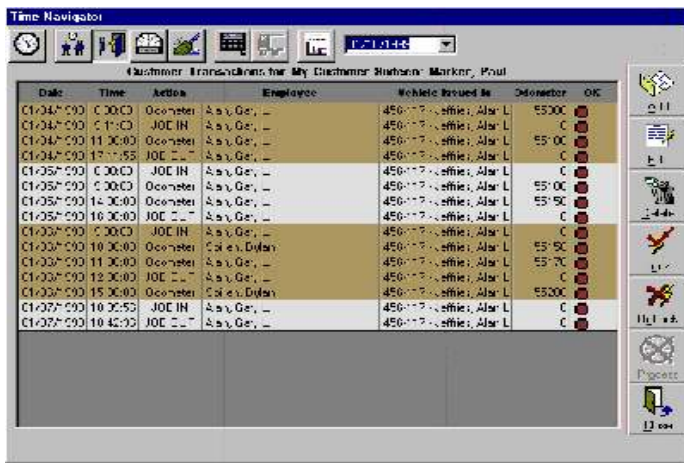
To add a new transaction or make modifications to an existing transaction, click the **Add** or **Edit** button. Fill in the appropriate changes to the record and save.

Customer/Job Transactions

The Customer Transactions grid displays customer related job transactions. From here, you can determine information such as which employees are on which job site and the amount of time that is being spent in relation to a particular job or customer.



Select the week ending date and then click the  button on the toolbar. Next, select a customer from the drop-down list. The grid will populate with transactions sorted according to Customer ID for the selected week.



Date	Time	Action	Employee	Vehicle	Speed	Se	Odometer	OIC
01-04-09	0:00:00	Odometer	Asy, Ger, _	456-117-efmie; Alar-L			55000	
01-04-09	0:11:00	JOB IN	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-04-09	11:30:00	Odometer	Asy, Ger, _	456-117-efmie; Alar-L			55:00	
01-04-09	17:17:55	JOB OUT	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-05-09	0:00:00	JOB IN	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-05-09	0:00:00	Odometer	Asy, Ger, _	456-117-efmie; Alar-L			55:00	
01-05-09	14:30:00	Odometer	Asy, Ger, _	456-117-efmie; Alar-L			55:50	
01-05-09	16:30:00	JOB OUT	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-05-09	0:00:00	JOB IN	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-05-09	10:30:00	Odometer	Col es, Dylan	456-117-efmie; Alar-L			55:50	
01-05-09	11:30:00	Odometer	Asy, Ger, _	456-117-efmie; Alar-L			55:70	
01-05-09	12:30:00	JOB OUT	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-05-09	15:30:00	Odometer	Col es, Dylan	456-117-efmie; Alar-L			55000	
01-07-09	10:35:53	JOB IN	Asy, Ger, _	456-117-efmie; Alar-L			C	
01-07-09	10:42:00	JOB OUT	Asy, Ger, _	456-117-efmie; Alar-L			C	


Customer Job consists of all Job In and Job Out keypad entries. These transactions are sorted in the grid by the entry date and time. From this grid you can add, modify, delete, approve and disapprove customer job transactions.

Reconciling and Modifying Customer Transactions

To make modifications to an existing transaction, click the **Add** or **Edit** button. Fill in the appropriate changes to the record and save.

Vehicle Odometer Transactions

Shadow Tracker™ Time makes it easy to view odometer entries made by the Shadow Tracker™ keypad. These entries are sorted by Vehicle ID as they are downloaded and can be viewed week by week from the Vehicle grid. You can modify transactions but cannot add from this area.

To view odometer transactions select the week ending date you wish to view. Then, click the  button from the toolbar and select a vehicle from the drop-down list.

The grid will populate with transactions for the week ending date you selected.



The screenshot shows the 'Time Navigator' application window. The title bar reads 'Time Navigator'. Below the title bar is a toolbar with several icons, including a clock, a person, a car, a gear, and a list. A date dropdown menu is set to '11/11/2005'. The main window displays a table titled 'Vehicle Transactions for 466 11/7'. The table has six columns: Date, Vehicle Issued to, Received by, Customer, Time, and Odometer. The data rows are as follows:

Date	Vehicle Issued to	Received by	Customer	Time	Odometer
01/31/09	Jett es. aler	A.s.v. Ge...	M. D. Homer C...een	09:00:00	55100
01/31/09	Jett es. aler	A.s.v. Ge...	M. D. Homer C...een	11:00:00	55100
01/31/09	Jett es. aler	A.s.v. Ge...	M. D. Homer C...een	15:00:00	55100
01/31/09	Jett es. aler	A.s.v. Ge...	M. D. Homer C...een	16:00:00	55100
01/31/09	Jett es. aler	S. J. es. Dyfan	M. D. Homer C...een	19:00:00	55180
01/31/09	Jett es. aler	A.s.v. Ge...	M. D. Homer C...een	11:00:00	55170
01/31/09	Jett es. aler	S. J. es. Dyfan	M. D. Homer C...een	15:00:00	55200

Reconciling Odometer Transactions


Select the transaction you wish to change. Click the **Edit** button which opens the odometer field for changes. Make your change to the transaction, then click the **Save** button or **Cancel** to disregard. You cannot add odometer transactions in this area. Odometer readings must be added from the Unprocessed transactions grid, then processed into Vehicle Odometer transactions.

Approving Transactions

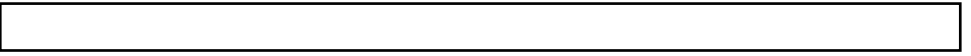
By approving transactions you are indicating that they have been reviewed and authorized as a valid entry. Approving a transaction:

1. Removes it from the New Activity area.
2. Sets a flag allowing the transaction to be included in export.

Transactions can be approved one at a time or in groups. To approve them, select the transactions using your mouse then click the **Lock** button.  Notice that the **OK** field in the selected transactions turn green to indicate the change.

If you change your mind you can disapprove a transaction before it has been exported by selecting it and clicking the **UnLock** button. 

Obtain a copy of the Employee Time Sheet and other time/job related information from the Reports window. Refer to the Reports section of the Shadow Tracker™ Professional Software manual and the Shadow Tracker™ Reference Manual for more information on the reporting feature.



Chapter 3

The Export Module

The Export Module is a time-saving utility that allows you to automate the transfer all of your data from the Time and Inventory Modules. Once your time and inventory data has been reconciled, and you are ready to transfer it into your accounting system, by utilizing the Export Module you will be able to quickly create a comma-delimited ASCII file that can be used for exporting your data directly into your company's accounting system software.

Contents of this Chapter

- **Preparing for Export**
- **Standard Export Module**
- **Professional Export Module**

Preparing for Export

First, click **Tools >> Export** from the menubar.

Next, determine which Export module (Standard or Professional) is included in your package by referring to the caption from the export form. In both the Standard and Professional module there are three distinct program areas that access the type of data from which you can choose to export:

Time Module Inventory Module Cash Receipts

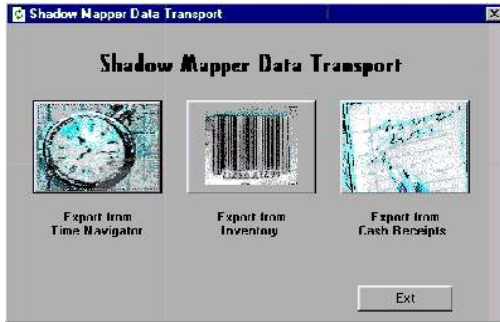


Figure F

The Export buttons for each of these areas will be enabled or disabled based on whether you have purchased that export program. Each area functions the same except for parameters you must supply, which are accounting package specific.

In order to build an export file you need to either create a template or use a pre-existing template. The template defines the number of fields in your file, their name, size, data type and the Shadow Tracker™ data each field should contain. In order to understand how your template should be structured you will need to be familiar with the import process of your accounting software.

Standard Export Module

The Shadow Tracker™ Standard Export module contains pre-set export templates which contain fields that are required by the accounting software you select. Some of the fields will not contain data however they are necessary for the import process to function properly.

- Click the program area (Time, Inventory, Cash Receipts) to access the type of data for which you wish to build an export file, then click **Next**. (Figure F)
- Select the accounting package and template, then click **Next**. (Figure G)

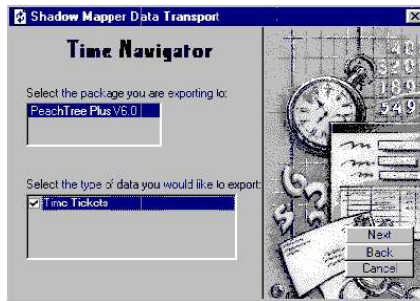


Figure G

The information in the parameters form are separated into three sections: Format, Filter and Options. (Figure H)

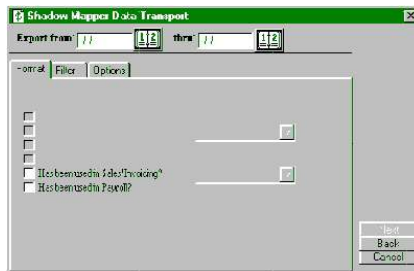


Figure H

The **Format** section defines the layout of your export data as required by the selected accounting software.

The **Filter** section defines what data you want to be included in the export. Based on the modules included in your Shadow Tracker™ purchase you can filter data by employee, customer and /or inventory item.

The **Options** section defines parameter requirements that are specific to your accounting software.



- When you are ready to view your Export file click **Next**.

Review the data that will be included in your Export file. Add or Modify any fields as required by your accounting software. (Figure I)

Once you are sure the data is ready for export click the **Validate** button to determine any obvious errors. If your data passes validation and you are ready to build your export file, click the **Next** button.

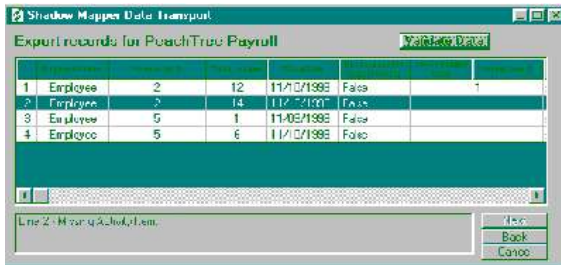


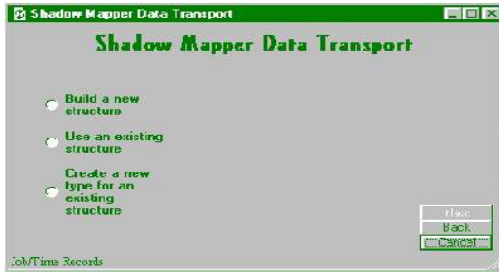
Figure I

A message box will appear indicating the name and location of your export file. You are now ready to import this file into your accounting software.

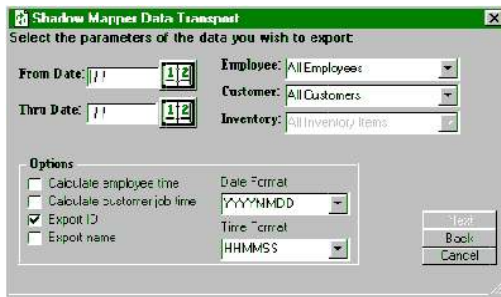
Professional Export Module

The Shadow Tracker™ Professional Export module allows you to define your own export templates. You can save your templates for future exports or re-define new ones. To begin creating a new template:

Select **Build a new structure**, then click **Next**.

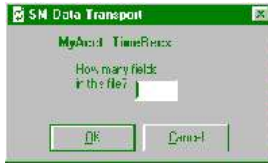


You will be prompted for an export name and a template name. Click **Next**. A parameter form will appear where you will indicate the dates for the data you want and how the data should be presented.

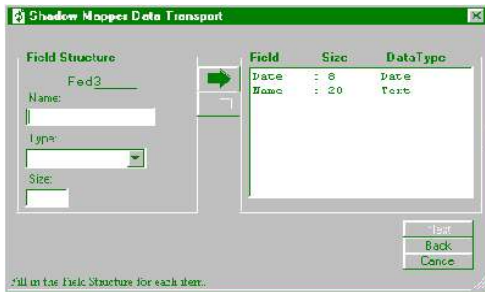


Options define the date/time format of any date fields, whether employee and customer fields should contain an ID number or a name, and if you want to export actual time data or total time calculated. After making these selections, click **Next** to continue to the next form.

Once you have specified the format and parameters for your export, you will need to begin setting up the template file.



When you click the **Next** button from the parameters form you are prompted for the number of fields you want in your export file. This number should include all required fields even if those fields will not include Shadow Tracker™ data. Click **OK** to set the number of fields.



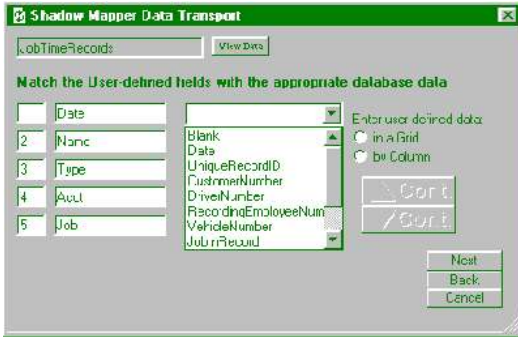
From the Structure form you will indicate the **field order**, **field name**, **data type** and **size** for each field in your export file.

Fill in the appropriate information under Field Structure and click the right pointing arrow button to add that field to the file structure.

Click the left pointing arrow button to return a selected field or make modifications. If you make a mistake and cannot recover click the **Back** button to start again.

Click the **Next** button when you are ready to continue.

Now that your fields are defined, you need to indicate what Shadow Tracker™ data should be associated with each field.

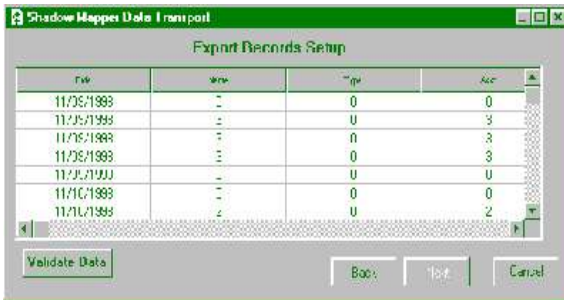


For each field, match the data field from the drop-down listbox. Each listbox includes a descriptive name of all of the fields available for export. A field called Blank is also included for any required fields that will not contain data.

Scroll through all of the fields using the **Cont. Up** and **Cont. Down** buttons.

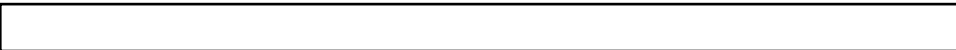
When associating the fields with their data, make sure that you are selecting fields with the same type of data. For instance, a name field can only be associated with a text type field, and a date can only be associated with a numeric type or date type field. Click **Next** to view the data for the fields you have selected.

Your data will appear in a grid where it can be modified and reconciled as needed.



Once the file format is satisfactory validate the data by clicking the **Validate Data** button. The validate routine checks each field in the grid against the associated data type, field size, etc. and verifies that it can be exported.

A message box will appear indicating the name and location of your export file. You are now ready to import this file into your accounting software.



Chapter 4

The Equipment / Vehicle Monitoring (EVM) Module

Managing employees and a fleet of vehicles is challenging enough. The EVM Module is designed to help further remove the guess work out of what is occurring with your employees and vehicles in the field.

What is EVM?

EVM is the acronym for **Equipment / Vehicle Monitoring**. It is currently available with the Shadow Tracker™ 2000 Tracking unit (**ST2000**). The EVM Module allows you to monitor, record and archive the daily status of a wide assortment of vehicle components. Upon installation you can begin to record data and generate daily reports that will help you more effectively monitor and manage the day to day operation and maintenance of your vehicles, as well as the work routines of your employees.

How does it work?

By utilizing the sensors / circuits already installed on your vehicle, the **ST2000** monitors and records the status of a wide variety of vehicle components / systems. Each **ST2000** comes equipped to monitor two digital signals, and after installing the EVM cable you will be ready to begin collecting data. The information you record will be as accurate as the sensor equipment installed on your vehicle by the manufacturer. Throughout the day, each time there is a change in the "state" of a particular component, the information is recorded by the **ST2000**. Then, when the **ST2000**'s data has been downloaded and processed, you can display GPS Tracking activity and create reports to provide a clear and accurate view of the moment to moment status of your vehicles components for any given time interval.

Contents of this Chapter

- **EVM Requirements and FAQ's**
- **The Edit a Vehicle Form**
- **Assigning an ST2000 to a Vehicle Record**
- **Sensor Ports**
 - Defining
 - Editing
 - History
- **Viewing EVM Data**
 - Historical Tracks
 - Reports

EVM Requirements

What do I need to begin collecting and processing EVM data?

- Shadow Tracker Professional Software installed with the EVM Module enabled.
- An **ST2000** unit that has been validated and authorized for use.
- An EVM cable, properly installed and connected to the **ST2000**.
- At least 1 valid and active Vehicle Record that has been assigned to an active Employee via the Vehicle Issue process.
- The **ST2000** assigned to a valid and active Vehicle Record.
- Sensor ports defined to correspond to the EVM cables' installation.

Frequently Asked Questions

What kinds of components can I monitor?

The EVM Module is currently configured to monitor digital signals.

Some examples of components that could be monitored using a digital signal are; engine RPM, A/C compressor, turn signals, emergency flashers, doors, hood, trunk, horn, headlights, seat belts, etc..

What is an EVM cable?

An EVM cable is used to connect the vehicle sensor switches or circuits to the **ST2000**. An EVM cable has a DB9 female connector on one end that plugs into the back of the **ST2000** unit. The other end has 4 sensor connection wires used to link into the vehicles sensor switches or circuits, allowing you to monitor 2 vehicle components.

Please note: It is the responsibility of the End-User to ensure that the EVM cable is properly installed.

How do you install an EVM cable?

Instructions for properly installing an EVM cable are outlined in the Shadow Tracker™ 2000 Hardware Manual.

What is a sensor port?

A sensor port is simply a dedicated communication path on an **ST2000** Tracking unit. The port is linked, via an EVM cable, to a vehicle sensor. Sensor ports are assigned a unique Name and defined according to the component being monitored and the "states" that are being monitored.

What is a "state"?

In the context of the EVM Module a "state" is one of two possible conditions that can exist for a particular sensor port, with State1 being considered the "active" state and State2 the "inactive" state. Example: For the sensor port named "Door", State1 could be designated "Open" and State 2 could be designated "Closed". Or for the sensor port named "Emergency Flashers", State 1 could be "On" and State 2 could be "Off".

What does it mean to Define a sensor port?

Defining a sensor port is simply assigning captions for the Name, State1 and State2 fields that will be used whenever you view EVM GPS data and view reports. The Name is for the component that the sensor port will be monitoring, and State1 and State2 are for the corresponding conditions that the EVM cables' connection wires are linked to monitor.

The Edit a Vehicle Form

The Edit a Vehicle form is where all EVM maintenance and functionality occurs for Editing sensor ports, viewing EVM History or creating EVM Reports.

From the PC Desktop:

Click **Start > Programs > Shadow Tracker Professional > Shadow Tracker**

From the Shadow Tracker Mapping 3.2 interface:

Click **File -> Open -> Vehicle Records**, and **<Click>** the Vehicle you wish to Edit.

Port	Name	Date	State1	State2
1	Door	08/28/2002	Closed	Open
2	Window	08/28/2002	Closed	Open

EVM Ports Definition

The **Name** column is where you enter the caption or phrase you wish to associate with this vehicle component.

The **Date** column displays the Start Date that this unique Vehicle# / Tracker# / Port Definition combination was added.

Columns **State 1** and **State 2** are used for defining the states of the vehicle component you are monitoring.

For example:

Port	Name	State1	State2
1	Door	Open	Closed
2	Emergency Flashers	On	Off

Please note: Enter the caption that correctly corresponds to the EVM cables sensor wire installation for that particular sensor port. The caption chosen here will be used later whenever you create a

Assigning an ST2000 to a Vehicle Record

Assigning

Before you can download or properly process sensor data, the **ST2000** unit must be assigned to a valid Vehicle record.

From **Shadow Tracker Mapping 3.2**

- Select **File -> Open -> Vehicle Records**
- **<Click>** the Vehicle you wish to assign.
- **<Click>** the downward arrow beside the Tracker # box. Highlight the Tracker # you wish to assign to this Vehicle record from the drop-down menu.
- **<Click>** **Save**.

Unassigning

To unassign an **ST2000** unit from a Vehicle record, do the following.

From **Shadow Tracker Mapping 3.2**

- Select **File -> Open -> Vehicle Records**
- **<Click>** the Vehicle record that the **ST2000** is currently assigned to.
- **<Click>** the downward arrow beside the Tracker # box and highlight "None Assigned" from the drop-down menu.
- **<Click>** **Save**.

Reassigning

ST2000 tracking units can be easily reassigned to a different Vehicle record. But, before the unit can be reassigned, it must first be Unassigned. Once this is done the **ST2000** can be reassigned to a new Vehicle record by following the instructions for assigning an **ST2000** to a Vehicle.

Edit A Vehicle

Vehicle: 1 Year: 2002 Group: ATTI

License: T74 H8D Make: Chevrolet

VIN #: DBW988465932T59 Model: Tahoe

Branch: North

Vehicle Description: White / 2-door

Tracker #: None Assigned (dropdown menu open showing P-111025)

Active? True False

Port	Name	State1	State2
1	P-101058		
2	P-111025		

Buttons: Trackers, Issue, Save, Close, Edit Ports, Save Ports, History, Report

Sensor Ports

Defining

Sensor Ports can only be defined for **ST2000** unit's that have been validated and authorized for use. Sensor Ports can be defined **or** redefined by accessing the Vehicle Record form.

- 1) Follow instructions for Validating your Tracking Units
(See Shadow Tracker Professional - Administrator Manual, page 21)

At the end of the validation process you will receive a Message Box asking "Do you wish to collect sensor data with this unit?" Select **Yes**.

- 2) Assign the **ST2000** to a valid Vehicle Record. (page 26)
- 3) Define the sensor ports.

From **Shadow Tracker Mapping 3.2**

- Select **File -> Open -> Vehicle Records**
- **<Click>** the vehicle record the **ST2000** is assigned to

From **Edit a Vehicle**

- Select **Edit Ports**
- Enter captions for the Name, State1 and State2 columns
- **<Click> Save Ports**

The screenshot shows the 'Edit A Vehicle' window with the following fields and values:

- Vehicle: 1
- Year: 2002
- Group: ATTI
- License: T74 H8D
- Make: Chevrolet
- VIN #: DBW988465932T59
- Model: Tahoe
- Branch: North
- Vehicle Description: White / 2-door
- Tracker #: P-111025
- Active?: True, False

The 'EVM Ports Definition' table is as follows:

Port	Name	Date	State1	State2
1	Turn Signals	08/20/2002	On	Off
2	A/C compressor	08/20/2002		

Buttons on the right side: Trackers, Issue, Save, Close. Buttons at the bottom: Cancel, Save Ports, History, Report.

Editing

Sensor ports can be edited or redefined by opening the Vehicle Records Form

- 1) From **Shadow Tracker Mapping 3.2**
 - Select **File -> Open -> Vehicle Records**
 - **<Click>** the vehicle record that the **ST2000** is assigned to.
 - Select **Edit Ports**
 - You now have access to redefine the Ports as needed.
 - Enter captions for the Name, State1 and State2 columns.
 - **<Click> Save Ports**

Note: The Historical data collected for the previous **unique** Vehicle# / Tracker # / Port Definitions **combination** will be archived into EVM History. The data will be accessible by way of this **unique combinations'** Start and End dates.

History

A **unique combination** is created whenever a Vehicle# is assigned to a Tracker #, and the sensor ports are defined. EVM History provides an interface to view all past sensor port definitions associated with a particular Tracker #. These records are displayed chronologically according to the Start and End dates of the combination. Whenever an existing combination is modified in any way and then saved, a new unique combination is created and the previous combination is archived. It is possible to recreate previous combinations, but because they will have different Start and End dates they will never be identical.

EVM History can be viewed from the **Monitoring History** form.

From **Shadow Tracker Mapping 3.2**

- Select **File -> Open -> Vehicle Records**
- **<Click>** the Vehicle that you wish to view.
- **<Click> History.**



The screenshot shows a window titled "Monitoring History" with a search interface and a data table. The "Vehicle" field contains "1" and "T74 H8D". The "Tracker" dropdown is set to "P-111025". The table below lists two port definitions:

Port	Name	T	A	O/M	Start	End	State1	State2	CMIn	CMax
1	Turn Signals	D	Y		08/28/20	/0/0	On	Off	0	0
2	A/C compressor	D	Y		08/28/20	/0/0	On	Off	0	0

At the bottom of the window are "Previous", "Next", and "Close" buttons.

You now have access to view the EVM History for all Vehicle / Tracker combinations.

Viewing EVM Data

Once EVM data has been collected and processed it can be viewed in two different ways. Either as part of an Historical Track display of GPS data or as an EVM Report.

Historical Track

To view EVM data as part of an Historical Track, do the following.

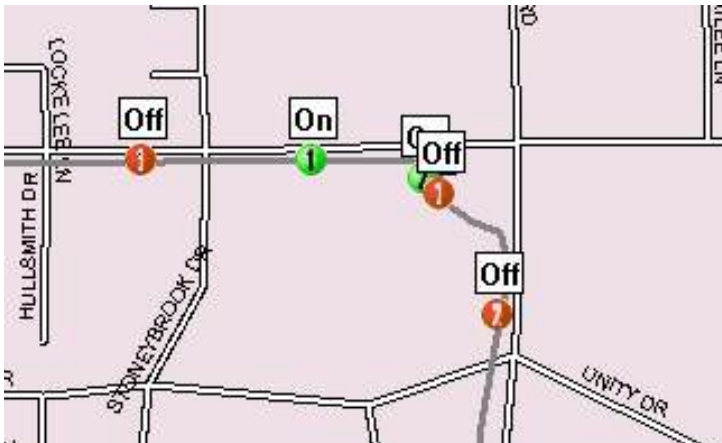
From **Shadow Tracker Mapping 3.2**

- Select **View -> Historical Tracking -> Select Track...**

From **View Historical Track**

- Choose **Track/EVM**
- Select **Start** and **Stop Date**
- Select **Start** and **Stop Time**
- Check the **Vehicle #**
- Select either **Port Name** or **Port State**
- **<Click> Build**

The EVM data is displayed on the Historical track as a series of numbered, colored circles. Each circle displays the port number and the caption associated with the port state, with green indicating the *active* port state and red the *inactive* port state.



EVM Reports

The Monitor Activity Report displays all sensor port activity for a specified time period, detailing the Start / End time, Port State and Duration of all sensor port changes. Each report also includes a summary to provide a quick overview of activity.

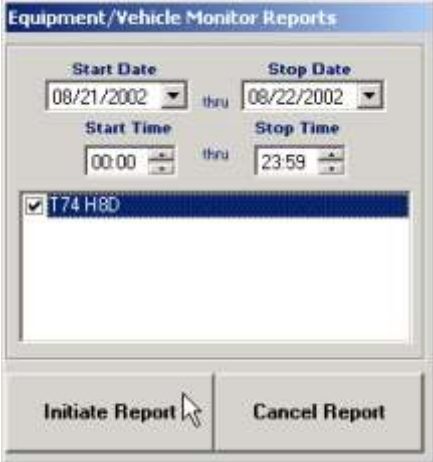
Monitor Activity Reports can be created and viewed from the **EVM Reports** form.

From **Shadow Tracker Mapping 3.2**

- Select **File -> Open -> Vehicle Records**
- **<Click>** the Vehicle you wish to view.
- **<Click>** **Report**.

From **Equipment / Vehicle Monitor Reports**

- Select **Start** and **Stop Date**
- Select **Start** and **Stop Time**
- Check **Vehicle #**
- **<Click>** **Initiate Report**



The screenshot shows a dialog box titled "Equipment/Vehicle Monitor Reports". It contains the following fields and controls:

- Start Date:** A dropdown menu showing "08/21/2002".
- Stop Date:** A dropdown menu showing "08/22/2002".
- Start Time:** A time selection control showing "00:00".
- Stop Time:** A time selection control showing "23:59".
- Vehicle #:** A list box containing a single entry "T74 H8D" which is checked with a small square icon.
- Buttons:** Two buttons at the bottom: "Initiate Report" and "Cancel Report". A mouse cursor is pointing at the "Initiate Report" button.



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