



# Voyager - Attendance Verification System

## Advanced Operations Guide

- Hints & Tips
- Technical Information

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### ***Elite-ID Electronic Systems***

*57A Ridge Rd*

*Kallista Vic. 3791*

Web [www.elite-id.com.au](http://www.elite-id.com.au)

Phone 03-9752-0744 - Fax 03-9752-0733

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*Marian*    *User Support*    *0419-130-995*    [marian@elite-id.com.au](mailto:marian@elite-id.com.au)

*Richard*    *Tech Support*    *0419-130-968*    [richard@elite-id.com.au](mailto:richard@elite-id.com.au)

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## **Advanced Elite Voyager System Operations**

“Straight out of the box” the Elite System functions simply and efficiently and most users will never need to extend its operation beyond a single site with the “standard” features of the program.

This information is aimed at users wanting to extend their use of the Elite System and wanting more in-depth knowledge of what it is capable of.

Also included are descriptions of techniques and methods that will enhance your use of the Elite System and help ensure its success.

*Please note that much of the information presented is of a technical nature.*

### **Audience**

This information is aimed at;

1. Existing users of the Elite System looking to use it more fully.
2. Larger corporate users wanting to deploy the Elite System at a number of locations yet keep centralised control and reporting.
3. IT and Technical staff wanting more and in depth information.
4. Prospective clients wanting to know the extent of features of the Elite System and what differentiates it from other systems.

### **Requirements**

To implement some of the described advanced techniques;

- You must know how to use Windows Explorer and WordPad,
- You must know how to create a directory (or sometimes called a “Folder”),
- You must know how to rename a file and rename a directory,
- You must know how to copy a file and how to move a file.

## Glossary Of Terms

<b>BDE</b>	“Borland Database Engine”. This is the database engine – a software component – that the Elite System uses to access data. The BDE provides access to the data, Elite Reporter gives it data to store. Elite Reporter queries it for data which it recalls.
<b>Button Probe</b>	The stainless steel connector on the front of the data wand.
<b>Error</b>	Elite Reporter has “error batches” and at import time, attendance data that can’t be used is “in error”.  <u>Note that the data is not faulty.</u> It just cannot be understood by Elite Reporter because something has not been setup. For example, the serial number of the iButton™ has not been coded into the database , or the wand that hit the button has not been coded. Also, the data is not lost – it is “pending”.
<b>Hit</b>	A data reading containing a serial number and a date and time generated from touching a data wand onto an iButton™ or receiving a signal from a Pulsar.
<b>iButton™</b>	See serial number below.
<b>Import</b>	Bring into.  Elite Reporter “imports” data from raw data files. It reads the data and converts it to database format and stores it inside its own databases (using the “bde”).
<b>Probity</b>	We use this term in conjunction with data...eg “data probity”. We mean to imply the integrity of the data and its freedom from tampering or data corruption.  The Elite System has excellent security and data probity.
<b>Pulsar</b>	A mains powered transmitter unit that sends out very short range radio signals containing a serial number.
<b>Return Time</b>	Average number of minutes between attendances at the same location.
<b>Serial number</b>	Dallas iButtons™ contain a 12 digit unique serial number. They are permanently laser burned into the chip inside the steel can and cannot be changed.
<b>Table</b>	Sometimes called a data-table. It is another name for a data-base.
<b>Token</b>	A small data item used to perform some function.  Elite Reporter will read a “token file” – which is a plain text file containing a list of commands that are processed in turn.
<b>Unload</b>	Extract data from. Same as “download”.
<b>Visit</b>	Another name for a hit.
<b>Wand</b>	A name for a data logger containing a real time clock, memory, iButton™ interface. Also called a data wand.  Voyager wands also contain a radio transceiver.
<b>Zone</b>	An area that is “covered” by a Pulsar. Radio Wands in this area can be reasonably expected to receive the Pulsar signal and log it to memory.

## Intellectual Property Ownership Statement

The Elite System is used on department of defence and many major corporate company computer systems.

Many computer systems are audited to ensure that all software is legal and legally loaded and licensing schemes are not contravened.

The question that is often asked is “whose program is this and is it a legal copy”.

Quite Simply;

1. Elite-ID Electronic Systems own the Copyright© 1998 to the complete Elite System – hardware, software, reporting formats, data formats and techniques.
2. The Voyager Radio system developed by Elite-ID Electronic Systems in 2000 is also owned by Elite-ID Electronic Systems.
3. All software and designs within the Elite System and Elite Voyager System are owned by Elite-ID Electronic Systems. Any work performed by contractors is and remains the property of Elite-ID Electronic Systems.
4. Parts of the Elite Reporter program embody software portions that are proprietary to other companies. Those companies have granted to all users of their programming and development system the right to freely distribute programs made with their systems without royalty payments, licensing restrictions or limits.
5. All copies of Elite Reporter from inception have been sold with the restriction that they may only be used with Elite System hardware.
6. The “identiMesh” system used for remote downloading of radio data wands and transferring data around large areas intellectual property is owned by identiMesh International Pty. Ltd. This is used by Elite-ID Electronic Systems and clients by permission.
7. The “Spike-MIT” internet based web appliance intellectual property is owned by identiMesh International Pty. Ltd.

## **Flexible and Robust**

We tell our clients our system is flexible and robust.

This is why;

**Repair.** If you have a list of serial numbers and centre-location names and a backup of the raw data then you can rebuild a database from the ground up quite easily.

**Repair.** If a database set of files breaks, we supply a repair program. We can also advise on how to replace broken databases. Sometimes parts of a database can be deleted and then automatically rebuilt. The system is remarkably robust.

**Robust.** Data in the wands and in the Unloader is not lost if they go flat. Data will not be offered to be deleted from the Unloader unless it has been successfully transferred to the PC and checked.

**Robust.** Data will not be used by EliteReporter if it is “damaged” or tampered with. It only uses raw data files after they have been checked.

**Robust.** Strange as it may seem, we regularly repair data wands that have been run over by cars or submerged in water. In nearly all cases we can refurbish them for a fraction of the cost of a new data wand.

**Robust.** After over 1000 installs of the software since 1998 the design of the software, its security features and reliability has been proven time and again. We would not change!

**Robust.** We have clients regularly importing 10,000 records into EliteReporter per day, over 300,000 records per month and it handles this data load easily.

**Flexible.** Raw data from an Unloader can be eMailed and used in multiple reporting programs safely and securely. Reports can be done “on site” and also at “head office”.

**Flexible.** Raw data from an Unloader can be used in other programs (eg Excel).

**Flexible.** The Reporting and Unloading programs and databases etc can be setup for network operation and multi-user access (at no extra cost). They can be put on a server.

**Flexible.** A databases’ settings can be backed up to a “token file” (V2.65). This can be edited with WordPad or similar and used to create another database or added to an existing database. You can add to or create databases from other databases.

**Flexible.** The “Spike-MIT” and “identiMESH” systems can use data from iButton™ and also the Voyager Radio wands.

**Flexible.** Using the “Unlock Code” we can change, shift and tailor a database set.

## **Elite Data Storage Areas**

We store data in the following places.

### **“C:\EliteData”**

This is the outer “base” directory for raw data.

### **“C:\EliteData\UnloadedData”**

We call this is the “Unloaded Data directory”.

Raw data from XL Unloader that has **not** been imported is stored here.

When XL Unloader does a “get data”, it is stored here.

### **“C:\EliteData\UnloadedData\Archive”**

After raw data has been imported into Elite Reporter it is moved here. You will see all your old data files. *Please back them up to CD periodically.*

You do not need to use these files again to generate a report. Reports are generated from the “db” directory (see later).

### **“C:\EliteData\Audit”**

Some options in Elite Reporter and XL Unloader store some data files here.

### **“C:\EliteData\Mesh”**

Data from automatic radio system unloading units connected via the identiMesh system is temporarily held here.

### **“C:\Program Files\Elite ID\EliteReporter”**

Your programs are stored here.

### **“C:\Program Files\Elite ID\EliteReporter\db”**

We call this the “db” directory. *Please backup this directory.*

This is the ‘data base’ directory. All reports are generated by reading the files here. When you import data, it is copied then inserted into these files.

## Data Movement

The first step in understanding the Elite System is to understand the movement of data through it.

1. iButtons™ are read and stored in data wands. Data “grows upward” in wand memory. Each record is verified. Data will not be “written on top” of other data, the wand verifies everything.
2. When a wand is touched onto an Unloader the Unloader reads the wands’ real time clock, its own real time clock, and records this information into the Unloaders memory. This is an audit of clock performance and is called a “time sync” record.
3. Next the Unloader verifies the serial number in the wand is OK (via a check summ). A second serial number is kept in the wand and this is also used. If either are broken then it is repaired. If both are broken the wand will not be unloaded and the Unloaders red led will flash quickly.
4. After synchronizing the real time clock and if the serial number(s) are OK, the Unloader takes records one by one off the top of the Wands’ memory and stores them into the Unloaders’ memory. Each record is verified in the Unloader before it is deleted from the wand. Each record taken out frees up that space in the wand. The wand does not need to be emptied in one unload – you can take 1 record, 10% or all data in an unload.
5. When the Unloader is unloaded into a PC, its’ data is stored into a disk file in the PC at the place and with the name as configured.
6. Unloading is non-destructive. You can unload the same data many times.
7. When all data has been extracted, the disk file is closed, re-opened, checked, and then closed. If all is OK then the program offers to delete memory in the Unloader.
8. Memory erase is final. There is no “unerase” possible. Memory is fully wiped.
9. Elite Reporter “Data...Import” option reads an Unloader data file. The data is scanned and any that matches the databases is inserted into the databases usually located in “db”. Any that does not match is left in the error batches.
10. Any data that does not match the integrity checking systems is ignored. This prevents tampering and addition of bogus data.
11. At the completion of reading the Unloader data file it is moved to the “Archive” folder.

## Common Faults

### Hardware

The most common fault is not charging the data wand. If it goes flat then the real time clock is “lost”. When it is recharged it **must** be touched onto an XL Unloader to re-set the real time clock. If you leave a wand flat for a long time (days and weeks) it will damage the battery.

Water and corrosion of wands is a major problem. The XL Wand and Radio Wands are not waterproof. If you get them wet, send them back as soon as possible so that we can clean and dry and repair them for you before corrosion sets in.

Real time clock problems happen when users do not carefully monitor the XL Unloader date and time. Version 3.63 and later of the XL Unloader will warn you when the clock is more than 90 seconds different to the PC real time clock.

Destruction by putting a wand in a microwave oven is not uncommon. We get a few back per year destroyed by this technique. This totally destroys all components and is not repairable. It is also very easily identified – “sniff” the wand and you will smell burning insulation.

XL Memory Unloader – if it is switched on and off and on again quickly or a surge enters the power line it can “confuse” the computer chip in it. It is easily fixed; turn off then unplug everything from it for at least 10 seconds then switch on again – it will work!

XL Unloader program “get data...abort”. If XL Unloader goes flat whilst unloading (no data is lost) it is possible that only a small part of a record is written to memory and it will be not recognised for what it is. Older programs will not recognise this and will abort. Get an updated program (see web site). Data is not lost.

### Software

The most common problem is not configuring the iButton™ serial numbers.

If data is imported and the serial number (or anything else) is not known about the data then it is an “error” and is put into the “error batch” area. You cannot generate a report till you fix the error (by updating the databases).

Next is not configuring a Wand. If the wand serial number is not known then the data cannot be assigned a job function etc – and the data goes into the error batch.

Least common but hardest to fix is “key violation”. This only happens when your PC crashes, is reset or something bad happens while data is being imported. The database format is corrupted and you must send the database to Elite-ID for repair.

## **Versions**

We change a revision of software only when there is a change in the program that is in some way significant.

There are two EliteReporter versions in common use and only one XL Unloader series of versions recommended for use.

### ***EliteReporter Version 2.5 Series***

All versions in the 2.5 series (ie. 2.50, 2.54, 2.56 etc) were supplied up until November 2004 and are still recommended for general iButton™ only use.

The later versions have small enhancements in a few of the reporting areas – mostly options for selecting dates etc.

If you are not using radio attendance logging using the Voyager equipment there is at present no compelling reason to upgrade from this version.

### ***EliteReporter Version 2.6 Series***

This series of versions is required for the Voyager Radio system.

Warning. This version has a different database format to the Version 2.5 series and cannot be run with Version 2.5 databases (it will terminate with a missing HitCode error message).

There are many small enhancements over the older 2.5 series, mainly in selecting reporting date ranges, backup of database and linking to external programs.

### ***XL Unloader Version 3.6 Series***

This is a program that has been in continual revision since 1997. Note that this program does not depend on or use a database, it can be used with any and all revisions of EliteReporter.

The 3.65 and above series is highly recommended. It handles some unusual hardware problems that caused unloading to abort.

The later versions (3.65) support USB to COM port adaptors up to COM-8.

## **Deleting Buttons, Locations, Centres**

You cannot delete centres, locations or buttons.

The reason for this is that the system may have old data that depends on these items if it is to be reported on. If these items were deleted then the old data would be left “dangling” and database integrity would be lost.

Many clients need to delete a location because it is no longer patrolled. We cater for this by using the “Pseudo Delete” functions.

### ***Pseudo Delete***

If you make the very first letter of a Location or Centre a “\*” then the location is ignored in many of the reports. EliteReporter V2.6 and above by default ignore items starting with “\*”.

You can change this behaviour in the “Maintain System” area. There is a check-box to bring these locations back so that you can generate a report on old data.

## Success Methods

We have found that there are **four critical “M”s**. If you master these critical areas your success is almost guaranteed.

### ***Monitor Results***

The sooner you identify a problem – the sooner you can fix it!

This is the most important part of any system. Checking shows you care and that the data is valuable. Checking is motivational to your staff.

If you don't care – why should your staff?

Unless you check, *and be seen by staff to check and value the results of the system*, you will find that your results will get worse (less attendance hits) over a period of time.

### ***Make someone responsible to manage the system***

The most successful users of our system make a central person responsible for its use and for checking that the results are what is required.

The central person ensures that all aspects of the system are maintained and policy adhered to.

### ***Motivate staff***

Using an iButton™ data wand requires that staff stop what they are doing, touch the wand onto an iButton™ then go back to doing their job.

If you cannot motivate staff to do this task then your results with an iButton™ system will be limited. If so, you should consider the use of the Voyager Radio logging system that does not require any user actions.

### ***Maintain Equipment***

The number of repairs caused by users not charging data wands or taking care of them amazes us.

Charging and clock control are the biggest factors to successful maintenance and long term value.

Similarly, we have users whose computer systems are so old and antiquated that they cause regular problems. The Elite System can generate and reliably manage hundreds of thousands of records. Give it a good PC to work in!

## The Value of Your Data, and Keeping it

Attendance data is a record of staff movements and it can be extremely valuable;

1. It shows that work was done in support of a billable cost,
2. It may be used in a court of law to support a negligence or insurance claim,
3. It may be required for a contract. The data monitors performance and may be used to show that you are meeting contractual requirements.

*Some of our customers, particularly in cleaning, use data from our system to defend claims for hundreds of thousands of dollars in slip and trip injury cases.*

There is no way to know “just which data” is going to be valuable to you later on. The best option is to keep it all safe. In quantity terms, a CD can store many hundreds of thousands of data hits.

Data in the Elite System is checked, verified and tightly controlled;

1. The Data Wands (iButton™ and Radio) verify received data before it is recorded into memory,
2. Before writing to memory, a check is made that memory is empty before writing into that memory, then after writing, data is verified that it was recorded correctly,
3. After downloading, the raw data streams are individual-record “locked”. The data cannot be changed or edited or falsified. Changed data is detected and ignored,
4. There is an audit trail deep within the system of all time and date changes as well as other equipment interactions. Some of this can be inspected with the “Clock Check” program,
5. The fundamental design of the system with its two-part data streams allows excellent disaster recovery. A system can be rebuilt with minimal trouble if basic precautions have been taken,
6. The selection of data-base system, programming language and design of the system in 1997 has been vindicated by over 1000 installations and 10 years of use by many customers that depend on the data. There are systems in constant use storing over 10,000 record per day and without problem.

## Analysing Data – The Reports We Recommend

We are often asked which reports to use to make best advantage of the Elite System.

Always, the emphasis is on simplicity. Our clients want the quickest and simplest method to determine if attendances are meeting target.

We believe there are 3 reports that when used together are the best and fastest way to extract value from the Elite System.

**FIRST** – use the Risk Management report to count attendances between times and dates (eg in trading hours for cleaning –or- in patrol hours for security).

A simple single number is a great way to determine and compare performance.

Set the filter to suit your application (for security patrols using cars for example, it could be set to 30 minutes).

**SECOND** – use the Location Attendance graph report to get a picture of actual performance. Use this to find any late start / early finish / missed time in attendances. It is very quick to check your data with this report.

**THIRD** – use the Centre Visits to “zoom in” and inspect actual data. Typically you only use this report when you need to check something in-depth. This report shows you actual attendances and is what would be produced in a slip and trip injury defence or for insurance and billing purposes.

*ALSO...please print and save a Centre Audit for all your sites. This is a valuable reference of serial number and location information that can be used to rebuild your database if you have no other backup.*

## Fixing An Elite Reporter Problem

Problems with Elite-Reporter usually fall into these categories.

- Missing configuration causing data to enter the error batches so reports can't be generated. Fix by expanding the error batch, find the error, fix it, re-import the data and it is fixed.
- System security permissions stopping Elite Reporter from creating directories, files and saving initialisation "ini" files. This is a computer setup problem and you must see your systems administrator or PC support persons. EliteReporter requires the following;
  - C:\EliteData\.... Read write and create permissions
  - C:\Program Files\Elite ID\.... Read write and create permissions
  - C:\Windows\.... Permission to maintain ".ini" files
- "HitCode" missing or error. This indicates that you are using a Version 2.6 EliteReporter program with a Version 2.5 set of database files that do not have this data item in them. There is no solution other than go back to using the Version 2.5 program series (we can update databases but it is time consuming).
- "Key Violation". This happens for two very different reasons.
  - If you try to add two of the same item to any database then this error is reported.
  - Alternatively your database may be corrupted. This happens when the computer malfunctions or is switched off or reset during operation. The solution to this problem is highly technical...contact Elite-ID.
- Damaged data base files. Usually caused by faulty computer systems or operator problems. We supply the "table repair" program to rebuilt data files. It is quick and easy to use. This is quite rare and often traced back to computer malfunction.
- PC system software clash. Unusual. Requires specialist technical knowledge.
- No User. When EliteReporter starts it request the name of the current Windows Logged in User. If "Cancel" was pressed at log in time then there will not be a current user and EliteReporter will terminate with an error message. The only fix is to log into the PC properly.

*Remember – the fundamental design of the Elite System provides excellent data security. It is usually possible to rebuild and recover from almost any problem.*

## **Normal Checkout Procedure**

When we do an “on-site” checkout of a system, we follow these steps;

### **XL Unloader**

1. Get into XL Unloader program and make sure the real time clock is correct,
2. Check the “Config” settings, Make sure the file prefix is set to a reasonable name to suit the site it is operating on,
3. Update to the latest version.

### **Elite Reporter**

1. Check the version. There are two data-base revisions. Older – 2.56 or newer 2.6 being the latest in each generation,
2. Check the error batch. If there is a lot of data in it, that is a serious indication of fault. Open the batches, inspect and fix. Re-import the batches and inspect the result.

### **Data Wands**

1. Check battery. We use a multimeter,
2. Check casing for damage, check probe for damage (abuse),
3. Check probe. Look for dirt or tarnish. Clean carefully.
4. Touch onto iButton™ and make sure button is ready quickly and easily.

## **Risk Management and Return Times**

To many of our clients, the Risk Management system seems like it is not applicable. We believe it is well suited to all users since it provides a simple, configurable and easily understood snapshot of operations. It is easy to make performance comparisons and it is easily understood.

### ***For Security***

Set the risk times to suit your operation.

Use the Risk Management report to quickly and easily count hits within a time and date range.

This is a really good way to determine average performance and quickly check it.

### ***For Cleaning***

This report is often critical.

It shows the time on average between attendances.

A specific (often 15 minutes) Return Time is demanded and used in contracts to ensure that areas of shopping centres are regularly attended.

### ***Generally***

The Risk Management system in the Elite Reporter program calculates an average return time for all your locations.

Some clients also call this a "loop time".

The value of this average is that it is a simple number that can be easily used to measure staff performance. It is a reasonable first indicator of performance.

"Average" means just that. It is a simplistic average. It is the number of minutes on average between times that a staff member attends a location.

For example, a "15 minute Average" means that on average a staff member attends 4 times per hour.

For cleaning, it is extremely valuable and many contracts demand 15 or 20 minute attendances.

For security it is useful to produce a simple number to compare day to day.

### ***How Return Time Is Calculated***

You must enter a time-table. This is the start and finish times that you want to monitor. Only data between those times is used in the calculation.

For example “9:00 till 17:00”. Only hits in this time will be used.

Do this for each day of the week to suit.

You can make up a number of time tables for a centre.

You also enter a “Filter”. This is an important factor in the calculation of average return time. This is the number of minutes that the system ignores further attendances after accepting the first attendance.

For example – if 4 radio wands (4 staff) attend a location at the same date and time, then, is that 4 units of risk management risk reduction or one? What if those 4 staff pass at 10 second intervals, one after the other? The filter time allows you to count just the first attendance then ignore subsequent attendances for a small number of minutes.

Another example. A cleaner hits a button when entering a toilet. The cleaner is there for 20 seconds. The cleaner hits the button again and leaves. Now – is that 2 attendances at the toilet or is it just one? At Elite-ID we believe that it should be counted as just one in the risk management report (in other reports ALL attendances are shown). YOU can tailor the calculation by using the filter – set it to 2 and attendances will only be accepted that are 2 or more minutes apart.

For cleaning, we recommend this be set to “2” minutes.

For security it can be set at a higher number, perhaps “5”.

### ***Problems With Return Times – And How to Detect them***

An average is just that...an average. There are ways to “fudge” the system;

For example, if your staff do double the number of attendances in the morning then none in the afternoon, it is possible their average is OK but the actual performance is not what you want (we call this “Fast Freddie”).

If staff start late and finish early yet get lots of attendances in the middle of the day...same thing. It is not what you want.

If staff carry more than one radio wand and try to “double up” attendances...again not what you want.

#### ***Use these simple techniques to detect problems;***

1. Make sure that the Filter in the risk time is set to 2 minutes or more for cleaning. This stops “double up” and “Fast Freddie” problems cold.

2. Display and optionally print a “Location Attendance” graphs for 2 or 3 indicative and different locations each day. This takes just a few seconds. You will almost instantly find out if staff start late or finish early – and you will find any “holes” in attendances caused by lunch breaks not being covered by staff or non-attendance for any reason.

### ***Risk Report Hits Do Not Match Centre Visits Report***

We are occasionally asked why a Centre Visits Report (that shows every visit or hit) has more data in it than is shown in a Risk Management Report.

The answer is two-fold. Firstly if filtering is turned on in the Risk Management report, it may (and is almost guaranteed to) skip attendances that are too close together. This is what it is meant to do.

Secondly the time of attendance matters. If the attendance is before or after the times used in the risk time parameters then the attendance(s) are not used (which is exactly as it should be).

### ***Not Enough Data***

If you do not have data then there is nothing we can do!

However, the first step is to look for any non-imported data files (and import them). Check if data is in the Unloader or in Wands.

Next and very important, check if there is any data in the error batches – use “Data.Reprocess....” option. Any data here will not be shown in reports.

## Disaster Recovery

Remember – nothing is perfect, nothing is forever. Consider these factors;

- The life of a hard drive in a PC is 3 to 5 years. They are mechanical. They fail.
- Some PC purchasing “operating lease” financial arrangements require giving back a PC after the lease expires. Where is the data then?
- Many larger companies update their PC every 3 years. PCs are “turned over”
- Operating system updates, viruses and equipment fault can (often) lead to data loss.
- What happens to your data if your PC is stolen or destroyed by fire or accident?

If you do not have a backup of your data and your database then you will lose everything at some later date (*sometimes there seems to be an immutable law that you will only have problems if you don't backup or the data is very important*).

### ***In a “nutshell”***

If you keep a list of the serial numbers and where iButtons™ and Pulsar serial numbers have been installed and you keep a backup of your raw data you can rebuild your database relatively easily. Print a Centre Audit to create this list.

If you *also* keep a backup of your data base directory, you can recover quickly.

*Keep both backups and you are doubly covered.*

### **Basic Precautions**

To recover from a major system crash, follow these steps.

Keep a record of the locations of all serial numbers – iButton™ and Radio Wands. Use the “Reports – Centre Audit” to make a paper printed copy and keep this safely stored away. This is a critical document of your use of the system.

Keep a separate backup of all your raw data files (backup the “C:\EliteData” folder).

Keep a “database settings” backup. This is done in Elite Reporter. It will backup to a USB drive for you. Using this and your raw data you can rebuild a complete system very quickly.

Backup the “db” directory in “C:\Program Files\Elite ID\EliteReporter\db”.

## Central “Core” Differences in the Elite System

The Elite System has many features that may not be immediately obvious.

### ***Technical Service & Support***

Elite-ID Electronic Systems designed, developed and continue to service and support their products.

We can provide full technical details. We can customise software. We are a technically based company.

### ***Two Step – Unload and Import***

The need to “download data” and then to later “import data” before a report can be generated can seem to be making the whole process more difficult or time consuming. Yes it adds a step – but it is worthwhile!

After having developed the system in 1997 and with over 10 years of experience, we will not be changing this process – for the particularly compelling reasons of;

- Long term data security. You can easily rebuild a database.
- Ability to down-load at one location, eMail data, then perform reports at other, and possibly multiple, locations. Many clients need and use this facility.
- Diagnostic ability. Raw data files can be inspected and analyzed. We provide a tool to do just this. You can use WordPad to open them.
- You can now merge databases and this requires access to the raw data files. See more information in the “Token” sections.
- You can split databases also – having the raw data files allows you to create a database from a split. See the “Token” sections.
- Independence. Our raw data format is simply understood and you can have your own reporting program written or use other software to store and analyse data.
- Integrity. Our raw data files are secured by a powerful checking mechanism that detects added or changed data.

### ***Data Security***

All steps in the process of logging, transferring and reporting on attendance data are secured, checked and tested for integrity.

Remember : data is not lost or deleted unless through very deliberate user activity.

Any data that is not understood is put into an “error batch” that can be viewed and the reason for the error is given. Once corrective action has been taken the data in the error batch can be Re-Imported and inserted into databases for reporting.

### ***Clock and Time Control, Auditing and Repair***

We have gone to great lengths to provide an audit trail of real time clock activity and to ensure that time control is both as simple and accurate as possible.

The time that an iButton™ or Voyager Pulsar is logged is maintained in the data wands internal real time clock chips. We use a dedicated real time clock chip for security and accuracy.

Note: once a record is taken it is permanently “stamped” with the real time and date. This is not affected by updating the Wands’ real time clock chip.

### **In other words, once logged the data is “locked in”.**

The wands’ clock is updated when XL Memory Unloader is used to extract data. The real time clock in the XL Memory Unloader is put into the Wand.

The Radio Unloading “identiMesh” system automatically updates radio wands in proximity. An audit trail is likewise kept.

### ***Data base System – Monthly Data Storage***

We store data in the databases by month. Each month is “stand alone” and can be deleted. If deleted, re-importing the data will re-build that months databases.

A primary benefit of this technique is that the size of databases is kept manageable. Whilst we have users with 300,000 records per month and performance is good; a single database containing 5 years data with each month this size would be very slow by comparison!

Another benefit is that this method limits the effects of a damaged database – only one month of data is lost and it can be rebuilt.

### ***Integrated Backup System***

In 2006 Elite-ID produced their own data backup system that makes a backup copy of database settings and raw data.

This software is integrated into the “Elite Reporter” program and is easily used.

This allows a complete database to be rebuilt with minimal effort.

### ***System Repair – Disaster Recovery***

If you keep a backup of your raw data files and a record of where all serial numbers are located, you can rebuild a database.

You can also import the data into other programs if necessary.

### ***The “Token” System***

This is detailed elsewhere. It is a powerful system and mainly aimed at system backup and supporting “enterprise” system use (multiple sites).

However, it also allows database operations such as merging and splitting and configuration backups.

This is done by creating “plain english” descriptions of the database operations that are required.

Software in EliteReporter takes these descriptions and performs the actions required.

The key to understanding the “Token” system is that it is a means of using small files to save or make configuration changes to a database. Each line of the file is a piece of information that can be used for configuring a database.

## The “Elite Token System”

This facility has been developed by Elite-ID to;

1. Back up your data-base settings in a human readable manner that provides disaster recovery as well as tailoring of recovery to suit individual needs.
2. Allows you to split or copy parts of a master database into “site” databases.
3. Merge or add a number of site databases into a master database.
4. Provide “support” to remote databases by sending them just a few small tokens to add a location or add a wand etc.

Notes;

1. Token files can be opened with WordPad or Word etc. They are “plain text”. Each line of the file is a command do to something to a database.
2. A line starting with a “;” is a comment. It is ignored. Use this to skip lines.
3. The comma “,” character must not be used in a location or centre description.
4. **CRITICAL** - When EliteReporter V2.65-i or later starts it always looks for a file called “EliteReporter.tkn” in the “C:\EliteData” directory. If found, the user is asked if it is to be used (processed). This is the only file name that is used and this is the only place it is searched for!

### **WARNING**

Before using the Token system we strongly recommend that you backup your database first. If you do not backup and you make a mistake then you can damage, lose or create a confusing mess of your system.

### **CAREFUL**

***The token system updates your database. If you make a mistake you cannot “roll back” the changes. You are stuck with the result. Hence....be very careful!***

***It is extremely important that you make a backup of any database before you apply a token update to it – just to make sure!***

## **Example Token File**

The following is an actual Token file. If you find a “tkn” file or the result of a system configuration backup “.txt” file you can open it with WordPad and see similar information.

Each line is read and processed by Elite Reporter to perform the actions described. Note the “;” that causes the location “Growers Pavilion” line to be ignored.

```
;Written 6/06/2006 16:03:33
Add,Lone Star Shopping Centre,01 Building J West,00000E51EB96,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,02 Building J Nth,00000E521FFB,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,03 Building D West,00000E519762,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,04 Building D Nth,00000E51F446,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,05 Building E West,00000E525B3B,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,06 Building E Nth,00000E52E77D,1/01/2006 16:37:18
Add,Lone Star Shopping Centre,07 Growers Pavilion Nth,00000E523837,1/01/2006 16:37:18
;Add,Lone Star Shopping Centre,08 Growers Pavilion Sth,00000E52E5CD,1/01/2006 16:37:18
AddJob,Security
AddUser,Security,,
AddWand,6304,Security,
AddWand,6305,Security,
```

## **Token System Ex-1. Backup & Restore of a database.**

We recommend you backup your system using the following backup procedure as soon as possible.

### **Backup.**

- Got to “Maintain....System Configuration”.
- Set the site name to suit (once only). This is used to create the backup file.
- Go to File menu and use the “Backup Database Settings” option. This will then create a file by the name of the site and type “.txt”. This is your token file. Keep it safe. Copy to a USB Stick or floppy or burn to a CD.

### **Restore.**

Use this procedure ONLY if your database has become badly damaged for some reason.

- Backup any existing database by copying it to another location on the hard disk or to a CD, or both!
- Rename the “db” folder to “db\_Old” or something similar.
- Create a new “db” folder.
- Copy a set of blank database files into the db folder. A blank database set of files is supplied on the Elite CD. Use a “Voyager” set of files.
- Rename the “.txt” file that was created with the backup system to “EliteReporter.tkn”.
- Put this file into “C:\EliteData” folder.
- Start the EliteReporter program. You will be asked if you want to process the token file....answer yes.
- In a few seconds your database will be updated with the information in the token file.

### **Notes.**

- If you did not use a blank database then the settings inside the Token file would be added to the database. If you did not want this – it is a problem!
- If you did not use a blank database and the centre name already exists in the database exactly the same as is in the Token file then it will NOT be added (names are checked and compared before being added).

## **Token System Ex-2. Create site database from master database.**

If you have a number of site systems that run the Elite System on client sites, this example shows you how to create a site database on your “Master PC” and transport it to site to make installation there very fast.

At your “Master PC”

1. Create the new site information in your PC
2. Use the “Reports...Centre Audit” option and check the Export option.
3. Press Execute. You will be asked for a file name. Use a name that is indicative of your sites’ name.
4. Copy the resultant file to a USB stick or floppy disk. We will call this the “site token file”.

At the “Site PC”

1. Install the Elite System CD.
2. Run Elite Reporter. Make sure it is version 2.65-i or later. Make sure there is no centre or button information.
3. Go to Maintain...System Configuration and create a site and report name.
4. Go to and key in information into “Maintain...Job Functions”, “Maintain...Users”, “Maintain...Wands”. Make sure you enter all the wands that will be used on the site.
5. Exit the EliteReporter program. Important – do not forget to close Elite Reporter!
6. Copy the “site token file” file from USB or floppy into the site computers “C:\EliteData” folder.
7. Rename the “site token file” to “EliteReporter.tkn”. This is the only token file that EliteReporter looks for when it starts.
8. Start EliteReporter. After logging in it will ask if you want to import the Token file and create the centre....answer “yes”.
9. You can now check that the centre, locations and buttons databases have been updated by using the “Maintain” menu options and the Report called Centre Audit.

### **Token System Ex-3. Add site database to master database.**

For example : you have a number of Elite Reporter systems spread around a number of sites. You want to copy their database settings into your master database.

1. Backup your master database. PLEASE DO THIS!
2. At each site....
  3. Make sure they are using Elite Reporter V2.65-i or later.
  4. Go to the "Maintain...System Configuration" section and make sure they have a site name that is indicative of the site where the system is in use.
  5. Go to the "File...Backup Database Settings" option and create the site token file.
  6. Copy the site token file to your USB stick or floppy.
  7. Repeat for each site.
8. Back at your master PC.....
  9. Close EliteReporter if it is running.
  10. Make sure you have a backup of your database folder.
  11. Copy all the site token files into "C:\EliteData" folder.
  12. Rename ONE to "EliteReporter.tkn".
  13. Start EliteReporter. It will find the token file and process it after you log in. Check the results.
  14. Exit EliteReporter and repeat for each site token file.

#### Notes.

After processing the EliteReporter.tkn file, the token file is archived. It is not "left laying around" to cause trouble later.

## Token System Ex-4. Create “site service pack token files”

Some of our clients have many sites that use the Elite System to produce reports on-site. This is not unusual.

You can use the token system to support these sites for site staff that do not have training or computer skills.

### ***You want to add a button to a site system***

Assuming your master database in “head office” has all your sites installed in it.

Assuming you have already used it to create your site systems or vice-versa – you created it by merging a number of site systems.

You now want to add a button or two (or Pulsars) to a site and you want to make it easy for site staff (or yourself when you get to site...).

What you can do is;

1. Add the button(s) and locations etc to your master PC. Test it.
2. Use the Centre Audit report and Export option to create a site token file.
3. Careful...make the name of the site token file sensible to the site.
4. After creating it, exit EliteReporter and then use either of the WordPad or NotePad programs to edit the site token file.
5. It is important that the new site token file ONLY adds the new information for the site.
6. Put a “;” in front of all the lines in the file that are not required. Just leave in the new location and new button information.
7. Save the file. Copy it to a USB stick.
8. Take the file to site. Put the site token file it into “C:\EliteData” and rename it to “EliteReporter.tkn”. Start EliteReporter and it will process the token file and add your new setups to the current database.

Notes.

You could alternatively eMail the (correctly named) token file to site and get them to save it to “C:\EliteData” and then restart EliteReporter to process it.

## Token System Ex-5. Update Database from 2.5 to 2.6

The introduction of the Voyager Radio system required a change to the database format.

You can use the Token System to update an older "V2.5" to the newer "V2.6" version;

### Overview

1. Make sure you are using EliteReporter Version 2.65I or later.
2. Start Elite Reporter. Use "File....Backup database settings" to create a backup of your database settings. This is a token file named to suit your site.
3. Rename your old data base folder. Create a new folder and put a set of blank Voyager database files in it (from the CD). This creates a new blank database.
4. Move and rename the token file to suit EliteReporter. Start EliteReporter. If it finds the token file it will process the data in it and rebuild your databases.
5. You must now move the raw data files from "Archive" to "UnloadedData" and re-import them to fully rebuild the data in your databases.

### Detailed Steps

1. Copy the newer EliteReporter.exe file into the PC. This MUST be version 2.65-8i or later.
2. Start the program. Go to "Maintain....System Configuration" and enter the site name to suit the location or company.
3. Go to "File....Backup Database Settings". Create the backup file. It will be called by the name of your site - with "EBU" as the first three letters.
4. Exit EliteReporter.
5. Get into Windows Explorer. Go to C:\ProgramFiles\Elite ID\EliteReporter folder.
6. Rename the "db" folder to "db\_v250".
7. Create a new folder and call it "db". Note – this must be inside the EliteReporter folder. Put it anywhere else and EliteReporter will not start.
8. Copy all the files from the CD directory called "Voyager\_Support\Blank\_Db" into "db". There are over 100 files.
9. Check that this new "db" folder is inside the EliteReporter folder.
10. Use Windows Explorer to copy the database settings backup file from "C:\EliteData\Audit" to "C:\EliteData"

11. Rename the file to "EliteReporter.tkn". (this is the ONLY token file name that EliteReporter will try to use). It must be located in the "C:\EliteData" folder.
12. Start EliteReporter. If you failed in steps 7 and 8 the program will not start.
13. If you got the token file named correctly and in the correct location then you will be asked (after logging in) if you want to process the token file. Then you will be asked if you want to add the centre that is not already in your data base. Answer yes to both.
14. A few seconds later it will be finished.
15. You must now check everything. You may have to add in the "Company Name" in Maintain System Configurations.
16. Next, move the raw data files from "C:\EliteData\UnloadedData\Archive" down to "C:\EliteData\UnloadedData". Now start importing these files and check for errors. If there are data errors on import you must action them (eg wand not coded or no serial number coded etc).

## Technical Description of the Elite System

We are occasionally asked, usually by I.T. Management staff, about details of the Elite System.

NOTE : this information is proprietary to Elite-ID Electronic Systems and contains commercial techniques that are the sole property of Elite-ID Electronic Systems. Copyright is owned by Elite-ID Electronic Systems.

There are two main programs;

- Elite Reporter (database application) and
- XL Unloader (Data Extraction tool).

### **Elite Reporter**

This is a full relational database application. It is sold extremely cheaply.

Elite Reporter is based on the Borland Database Engine for its data access. It is multi-user capable without modification or cost. We have found it to be reliable.

As of 2005, we have clients using it with 10,000 records per day. It has extremely high capacity and has proven since its inception in 1997 to be both highly stable and robust. There are approximately 1,000 installs of this software in Australia.

Raw data from logging instruments is imported into the system (and many checks and tests are done on it). After importing, the data is inserted into database tables.

The separate data files means that it is a two step process; extract data into a raw file then import into the databases. This has many benefits including sending raw data files by eMail, disaster recovery, simplified data analysis, multi-site reporting, external reporting, auditing of data by Elite ID.

Reports are generated by reading the relational database tables. The raw data is not used again unless a re-build of the database is required. After importing the raw data it is automatically archived (moved to a directory called "Archive") for simple but effective file management.

Elite Reporter automatically creates relational data base tables to hold the data and updates any databases that are pre-existing.

Data files are, by default, stored in "C:\Program Files\Elite ID\EliteReporter\db". This "db" directory can be moved to a network server or any other location. If this is done the Alias that points to the files needs to be changed (see control panel, "BDE Administrator" program). Note that the path name should not exceed approximately 30 chars.

Since Elite Reporter maintains data files in the “db” directory (create, read, write), users of the program must have enough security privileges to perform these operations – Windows XP for example must grant these privileges to the user.

Elite Reporter also maintains an “.ini” file.

Data is stored by month. Each month is a separate set of data files. This limits data file size and helps performance in large systems (eg. 300,000 records per month does not cause any size problems).

Each attendance record requires approx 20 bytes of storage (data is highly efficiently stored).

We would not expect any problems using this program in a well maintained and well functioning PC.

Data files can be damaged by program reset during critical operations and/or PC malfunction. We supply a “table repair” program that will fix many of these faults.

Some corruptions require that a data table be sent to Elite-ID for repair. This is usually indicated by a “key violation” as a result of a serious index and auto-increment field failure.

Some sections of the Data base system can be rebuilt by deleting sections of the database and then re-importing raw data (which recreates databases as required).

In all practical terms, the system is limited only by PC performance and storage. A few gigabytes of storage will provide many years of data storage. A modern Pentium-4 gives fast enough performance for nearly any application.

## ***XL Unloader Software***

XL Unloader program uses a COM port – serial RS232 (9600 baud, 8 bit, 1 stop, no parity) data to connect to and extract data from an external XL Unloader unit.

USB to COM port converters have been successfully used on PCs without COM ports – however- these need careful installation and often require a setup CD (from their manufacturer) to get them properly configured.

The XL Unloader program extracts data from the XL Unloader then creates and maintains directories and data files in “C:\EliteData\UnloadedData”.

Data file locations can be specified to be on another hard disk or network server.

Data files are plain text with embedded security and integrity checks.

Data files are not overly large – each attendance record requires approx 75 bytes of data file space. With modern computers this is not overly significant.

Data files are named by day and date, (your) company name, and run sequence number. For example “xyz\_2006\_06\_06\_1.txt” ,

XL Unloader maintains information in a standard “.ini” that is usually located in “C:\Windows” directory.

## ***XL Memory Unloader Unit***

This is a battery powered unit that has a small computer chip and 1mb of flash memory that store 65,535 readings.

It was designed for portable and simple data extraction of data wands into its own internal memory.

A data wand can be touched onto its front connector connector-can and data is extracted.

A real time clock in this unit is used to update the real time clocks in data wands when they are touched onto it hence it is vitaly important to keep this units' clock correct.

Operation life is up to 12 hours from a charge (switch it off when not in use!). Since it takes approx 3 minutes to extract 2000 readings from a data wand, it has a long operational life. Recharge time is approx 12 hours.

## ***XL Data Wand***

This is a small data logging instrument that reads iButtons™. It can store 2046 or 4095 readings (depending on version) into its own internal eeprom. Each reading is date and time stamped.

Battery power is from a NiMH battery. Battery operation life from new fully charged state is approx 13 weeks (over 90 days). Recharge time is 30 hours from flat. We recommend recharging weekly for 4 to 6 hours.

Operational staff in security and cleaning applications may be expected to log from 100 to 150 readings per 12 hour shift. This is an observed average.

## ***Voyager Radio Wand***

This is a new generation radio transceiver data logging instrument. It will read an iButton™ as well as radio transmissions from Voyager Pulsar units. It can be Unloaded and "time-synced" from identiMESH Radio Unloaders.

Storage capacity is 4095 readings. Battery life is 40 hours from a full charge. Recharge time is approx 12 hours from flat.

We recommend recharge for 6 to 8 hours per day.

In practice we observe approximately 500 radio data readings per day as normal for a cleaner in a shopping centre with appropriate Pulsar coverage.

Radio Wand can also be downloaded into a "Radio Unloaders" or into the conventional XL Memory Unloader.

## Enterprise System Support

A major difference between the Elite System and other attendance verification systems is that we have engineered it to suit larger users wanting to support and maintain many sites, larger sites and remote sites.

There are two typical scenarios;

1. A cleaning company that has central reporting yet collects data at a number of shopping centres. Data must be collected from the remote areas then sent for reporting.
2. Security companies routinely use the Elite System in an “Enterprise” manner. A main company sub-contracts out service to other companies. The subcontractors use Elite equipment to log their attendances. Raw data files are eMailed to the main company for reporting – proof of work done.

The Elite System supports larger systems by;

1. The way the data files interact supports larger systems. Raw data files can be used locally and also eMailed to a head office.
2. The Token system allowing database merging, splitting, site-service and support.

Specific Examples;

1. On site the Elite System is used to generate reports for daily analysis and proof of work done. At the end of the week, all raw data files for the week are eMailed to head office for archival.
2. On site, no computer is available. Roving managers take XL Memory Unloader units to site and unload wands in turn. The ‘Unloaders are returned to head office, data extracted and reports printed.
3. A main contractor sub-contracts a number of other security companies to patrol business properties after hours (this is a common application!). The sub-contractors generate their own reports and keep track of their own staff. They send the reports to the prime contractor to prove attendance and for billing.
4. A head office computer is used to create site token files that are used to create site databases. Later data is eMailed back to head office and reports are generated at both locations. Both databases are synchronised using the token system.

## The Ultimate System

Please understand that this section alludes to commercial and proprietary systems that are in development. The intention here is to not “spell out exactly”, rather to indicate the direction that we are taking in current research and development tasks.

Elite-ID staff talk to contractors, centre managers, insurers, legal staff - regularly.

We listen to what people say and try to work out “what would be nice”.

Here is our direction “philosophy” (and it will be a real thing by December 2006);

1. Automate everything. Absolutely everything possible;
2. Automatic report generation. Keep the 2-part process of unloading and importing but do both of these tasks automatically,
3. Automatic backups to an external data-safe or archive via eMail,
4. Automatic notification of performance problem (eg. lack of attendances between times),
5. Automatic reports (eg. Daily Risk Management report eMailed).
6. Automatic notification of equipment fault – low battery, internal fault,
7. Connect to a local area network allowing access as a “web site” by all staff.
8. Provide internet access to allow remote management with access controls.
9. Provide internet access to allow remote reporting with access controls as web pages.

There are a lot of “small things” hidden inside this summary that are not spelled out. Much of this is, as of May 2006, in prototyping and demonstration stage.

Please see <http://www.identimesh.com> for more information.