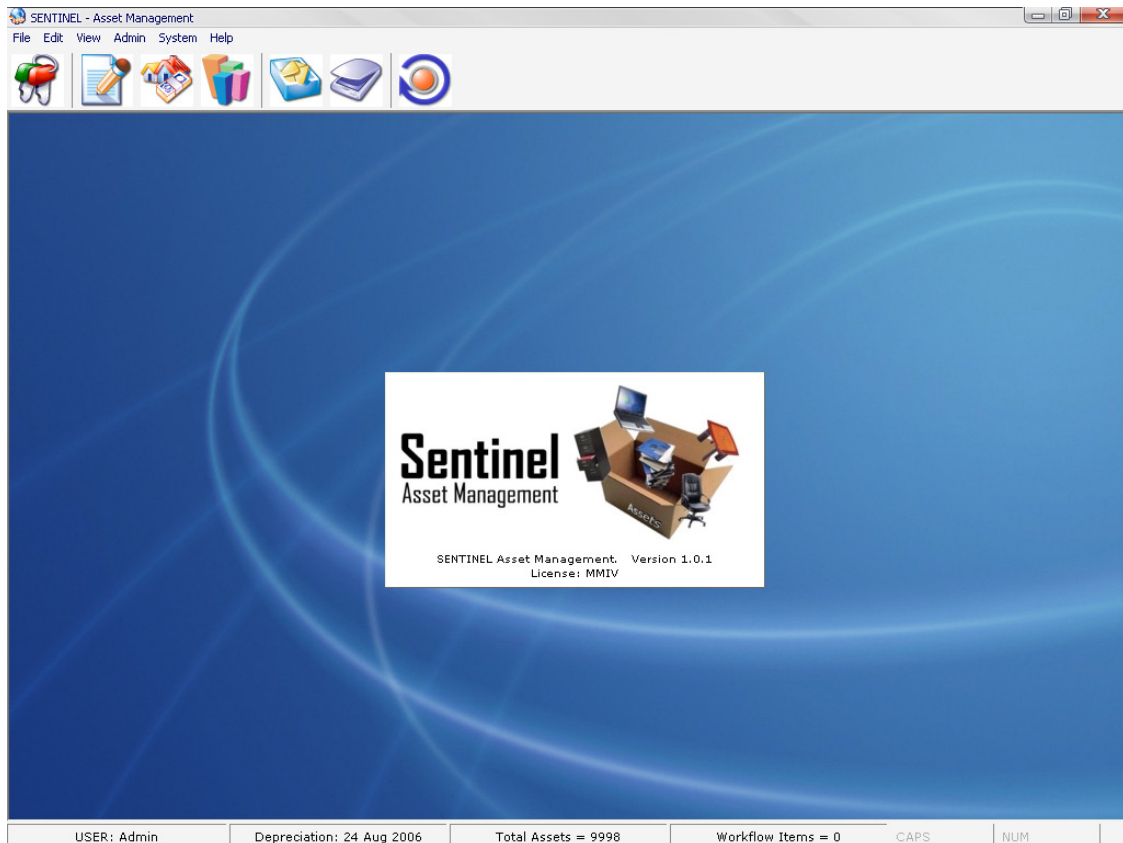# Sentinel
Asset Management

mmiv
MultiMedia InnoVations

1. Introduction

SENTINEL is a unique Asset Management System which also incorporates Barcode and RFID Technology. This system was developed to address specific needs of various clients in terms of Asset Tracking and Tracing. SENTINEL keeps track of all the assets within a company related to a Department, Cost Centre and a Custodian. These assets current values can be calculated at any time which will also include up to date depreciation according to South African Revenue Services guidelines.

The SENTINEL software will electronically takes care of all your assets Details and Locations. Assets will be stored in the system for audit and tracking purposes. A real time asset register will be available at any time to the user. There is also a comprehensive reporting facility built into the system. Assets may be also transferred, maintained or even disposed off through a strict workflow process. User permissions allow for users to have access to stipulated areas of the application.

With the aid of Innovative RFID technology SENTINEL is able to keep a track of all movable assets entering and leaving the building. All entrance and exit points within a building will require a RFID reader. This will ensure that all assets that are tagged with a RFID tag will be monitored and logged onto an SENTINEL database when entering or leaving the building. The RFID readers will also give an Audible Beep to warn security that an Asset is entering or leaving the building. Fixed assets therefore will need prior notice and administrative acknowledgement

before they can be moved out of a Building that is monitored by RFID readers. An integrated CCTV camera can also be installed at entrances where the RFID readers are situated. When an Asset is detected by the RFID reader, a snapshot can be taken of that area in real time for additional security. The RFID is however an optional extra.
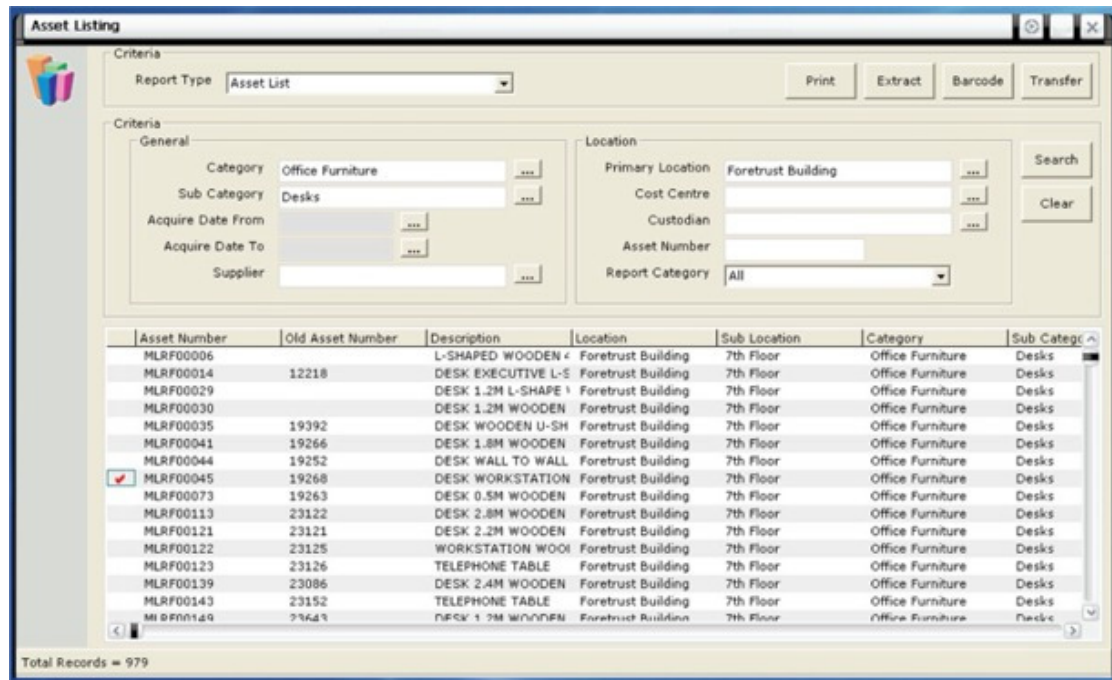
Asset stock taking is also made easier by utilizing a portable device that connects via blue tooth to a portable barcode scanner or RFID reader. This will make Asset stock taking much easier.

The SENTINEL asset management application incorporates the following:

- Asset tracking
- Asset Transfers, Disposals, Depreciation
- Report asset registers and asset maintenance
- Workflow for assets movements regarding asset purchase, transfers, disposals and asset deletion
- Supports Master and Sub Locations
- User permissions and security
- Setup of financial year and capital value
- Setup locations, categories, sub-categories, cost centers and custodians
- Electronic document management
- Barcode and RFID tracking of assets using numerous types of scanning equipment. RFID Includes both active and passive tagging
- Asset stock taking utilizing Barcoding or RFID
- Integrated CCTV for RFID checking at entrances and exits
- Barcode printing using specified barcode printers
- Supports "Portable Data Terminals" (PDT) for asset tracking and stock taking.

Creation of a new GRAP compliant computerized fixed asset register

SENTINEL caters for many report categories of which the most import is the asset register. The asset register is always available to user of which displays the latest book value figures. The figures are calculated on a daily bases of which are run at a database level. The calculations are normally done at midnight on a daily basis unless otherwise stated by the user.

Identification and categorization all assets according to specific asset classes

The system caters for the following:

Location, cost center, custodian, category, sub category, GL Code and reporting category.

- **Additional asset details**
  - Unique asset number (Barcode or system generated)
  - Order number if generated through asset purchase
  - Description
  - Old asset number (Barcode)
  - Container
  - Is the item a container
  - Serial number
  - Is the asset a consumable
  - Category
  - Sub category
  - GL Code

- **Additional asset details continued...**

    - Physical condition
    - Primary and sub location
    - Sub location barcode
    - Custodian
    - Date acquired
    - Capital value
    - Depreciation rate (Set according to the category chosen)
    - Cost centre
    - Supplier
    - Accumulated depreciation
    - Book value
    - Residual value (Optional)
    - Useful life (Optional)
    - GPS location (Optional)
    - GPS spatial mapping data for reporting (Optional)

Assign values to each individual asset under each category based on historical cost, book value or estimated replacement value per the relevant GRAP/GAAP Standard

SENTINEL allows for categories to assign a depreciation rate and period. This is assigned to the asset in the asset take one module. The system also allows for a residual value or useful life to adjust the value of the asset if required.

Align assets taken onto the system to the assets as listed in the Fixed Assets Register

An import and export data facility is available to allow for different file formats to be imported into the system as well as exported.

SENTINEL has the capability to import and export data. This as follows:

- **Flat file**
  CSV, XLS (Coma separated data file)
  XML

- **Database**
  ODBC compliant connection to Microsoft SQL server, MS Access, ORACLE, etc.
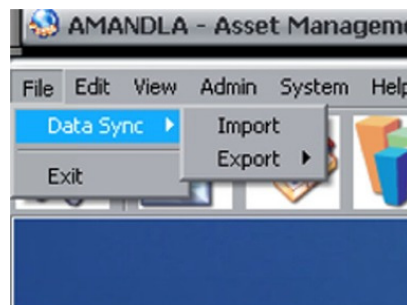
Adjustments to the software is rapidly available to accommodate filters to import or export data according to the required needs of a user or particular integrating system. However, a filter will be written to import the data that was supplied by the municipality.

Photographs of all assets for identification purposes, to be linked to the Fixed Assets register

SENTINEL implements a method of control via eDocs. The asset take on device of which is normally a tablet or laptop pc allows for a high resolution web camera or scanner to be connected to it. Upon taking on an asset a user may take a snap shot immediately and store it without the hassles of taking the picture then finding it and saving it to the asset.

This part of the system is based on a low level document management system that also caters for other documents such as asset transfer, disposal documents, etc to be scanned into the system and be attached to the asset for future reference.

These eDocs also have forms that are used to perform various tasks within the system i.e. Asset transfer, disposal, asset request or a Asset order. Once the relevant forms have been completed, the user is requested to "digitally sign" the order form. The "digital signature" is created when the user is created and cannot be edited or manipulated by anyone. Once the user signs the forms, the items is placed within workflow for approval. The system is also able to capture and store a picture of the asset for future identification.
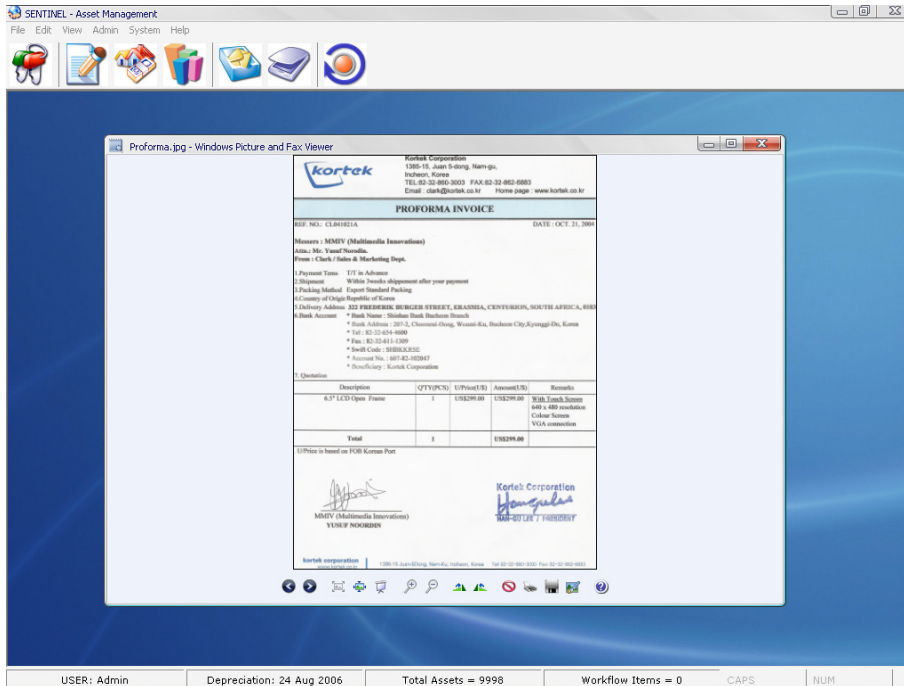
GPS coordinates for all immovable assets

GPS co-ordinates will be made available of immovable assets. These co-ordinates will be made available with the aid of a standard Garmin type GPS unit or a prtoable GPS tracking unit that can be connected to any portable or handheld device that will be utilized for the asset tagging.

SENTINEL additional information

4.1 User Logon and setup

A user's is required to input a user name and password upon system startup. Permissions will be according to the user's setup.

A user has to setup under a specific group according to the required security that the user has. Multiple groups can be created to accommodate different users that are required to use the system.

Once the required groups are created a user can be assigned to that particular group. A user's information as well as system access can be changed anytime by a user that has administrator permissions.

4.2 Financial year

The financial year beginning date has to be setup in order for the system to calculate the depreciation of assets as well as the asset registers. This will determine the opening and closing dates of the asset register.

4.3 Capital value

A capital value can be set in order to determine if assets over a specified value may be classified as a capital value.

4.4 Location setup

Locations need to be setup for asset take on. This will also indicate the location of the asset.

4.5 Cost center setup

Cost centers need to be setup for asset allocation. This will also include GL codes for ledger purposes.

4.6 Custodian setup

Custodians can be setup for asset allocation.

4.7 Category setup

Categories need to be setup for asset allocation as well as to determine the life cycle and depreciation rate.

4.8 Sub Category setup

Sub categories need to be setup for asset tracking as well as asset allocation. This will help for asset tracking and reporting.

4.9 Repot categories setup

Reporting categories need to be setup as to indicate as to which report category a specific asset will be indicated under.

4.10 Supplier setup

Suppliers can be setup for warranty, maintenance and auditing purposes. This is only used when assets are taken on using the purchase order section.

4.11 Purchase order (Asset take on)

Newer assets can be taken on using the asset purchase order section. This will allow procurement to indicate to the asset controller that new assets are going to be purchased. An order number as well as an order sheet will have to be provided for this. The system also allows for documents such as invoices and purchase orders to be scanned into the SENTINEL system.

Once this is done the item will enter workflow section. Only an asset controller or user that has specified permissions may access to workflow section.

Once in workflow the invoice can be attached by scanning in the document or searching on a specified drive. This will allow for assets to be received in batches or as a single batch.

5.1.5 eForms

SENTINEL implements a method of control via eForms. These forms are used to perform various tasks within the system i.e. Asset transfer, disposal, asset request or a Asset order. Once the relevant forms have been completed, the user is requested to "digitally sign" the order form. The

"digital signature" is created when the user is created and cannot be edited or manipulated by anyone. Once the user signs the forms, the items is placed within workflow for approval. The system is also able to capture and store a picture of the asset for future identification.

5.1.6 Audit Control

SENTINEL provides auditors with a quick and easy access to asset related information. These include audit and exception reports. This is achieved by combining the power of these reports with the Document Information System.

5.1.7 Sale and Transfer of Assets

An asset can be disposed of or transferred on the system. The selling date as well as the profit/loss is computed automatically.

5.1.8 Asset stocktaking

The system turns asset counting into a quick, sure process with results that can be trusted. Reconciliation is done within seconds after data export. Multiple exception reports are available though the three important exception reports are:

- Assets in the wrong location;
- Assets not on the register
- Assets not yet verified.

5.1.9 Enquiries and reports

SENTINEL offers a comprehensive reporting facility, which reflects the location of assets, as well as the quantity and value (purchase price and book value) of assets. Furthermore, MMIV provide a full ad-hoc report writing solution that allows for custom reports to be generated.

5.1.10 Hardware Configuration Tool (Optional)

SENTINEL has an integrated tool that allows for registered computer hardware to be automatically polled for verification as well as changes to its configuration. Any deviation of the recorded properties will result in immediate notification and a workflow task. This tool is completely automated and is not controlled from the SENTINEL system. The tool is deployed to the local workstations and automatically communicates with the SENTINEL suite.

5.1.11 Image Attaching

Many assets can only be differentiated by means of physical verification. SENTINEL allows the user to capture an image of the asset thus easing the process of identification.

5.1.12 Financial Calculations

SENTINEL is fully GAAP and GRAP compliant. The system automatically calculates depreciated amounts, current values, accumulated depreciation and other financial data. This allow for a wide amount of reporting capabilities.

5.1.13 RFID

SENTINEL is also RFID enabled, thus allowing for expensive assets to be automatically tracked and monitored. RFID is fast becoming the replacement to bar-code technology and by utilizing the SENTINEL system, the **client** can seamlessly upgrade to this technology without re-investing in new software.


5.1.14 Data Sync

SENTINEL allows the use of multiple remote site databases. The Central(Master) Database contains information about every asset within the Organizations Locations whilst the remote Databases only contain information about that specific location. A trigger and control method is used, where a user is prompted to create a "Data Sync" file which is then provided to the Head Asset Controller. The Head Asset Controller then uploads these changes. This voids the need for expensive leased line connections.

5.1.15 Workflow

A unique feature of SENTINEL is its workflow system. Rules are created upon system deployment. These rules govern the cycle of Asset take-on, asset management and Asset disposals. System-defined Administrators must accept changes to the database records before these changes are reflected. The workflow engine also performs logging and reporting functions.

Workflow approval via master asset controller

Once the object has reached its destination and the transfer slip that is generated by the system is signed, the master asset controller will confirm this with an entry into the system. This will clear the request from the system and also update the objects new owner and location.

MLRF00045 [07/08/2008]

Asset Transfer

Deleted

Transfers

Disposals

Asset Orders
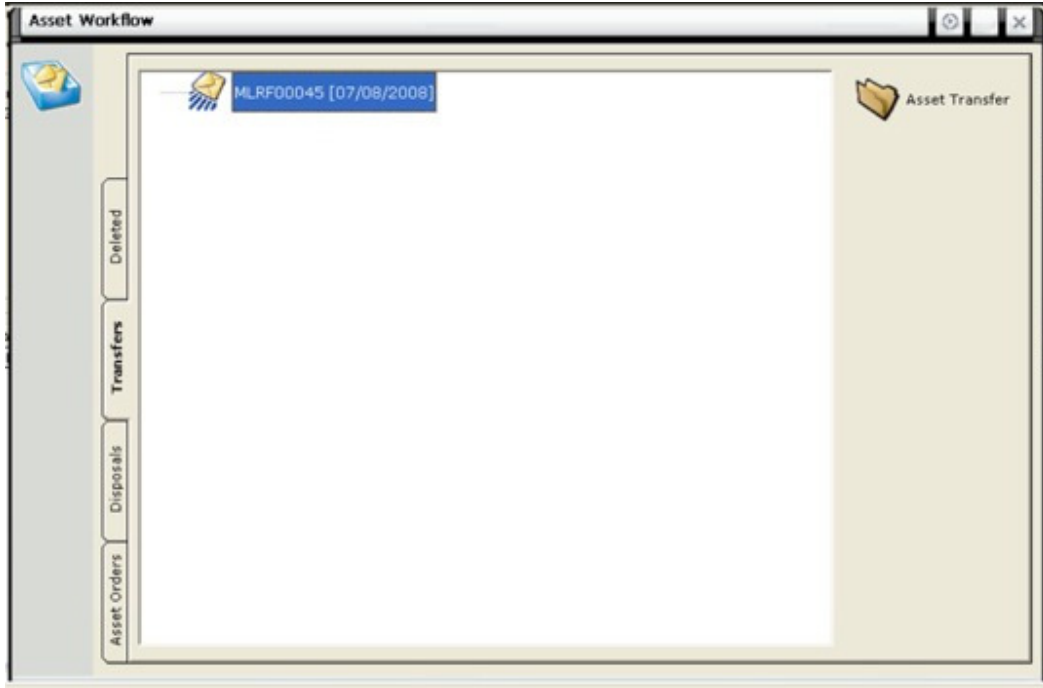
FIXED ASSET TRANSFER FORM
DEPARTMENT OF COMMUNITY SAFETY

ASSET TRANSFER DETAILS :

ASSET NUMBER	MLRF00045	DATE 07 Aug 2008
DESCRIPTION	DESK WORKSTATION WOODEN ON CASTORS	
SERIAL NUMBER		

TRANSFER FROM

Foretrust Building
7th Floor

None
Specialised and High Profile Unit

TRANSFER TO

Sea Point Research Aquarium
Room 101

Yusuf Noordin
ICM and Development

REQUESTED BY	YUSUF	DATE 07 Aug 2008
APPROVED BY	ADMIN	DATE 07 Aug 2008

RECEIVED BY   DATE

5.1.16 Purchase Orders

SENTINEL has a completely integrated DIS (Document Information System). This allows for paper records i.e. Purchase orders, lease contracts, work orders etc to be electronically linked to the asset. This provides a single repository for all asset related information. Purchase orders may also be manually captured in to the system for storage.

5.1.17 Document Information System

SENTINEL provides the functions that allow for multiple electronic documents to be linked to an object (asset, location, site, and custodian). This allows for a complete integrated information system that keeps all related aspects of the asset together and makes this information readily available. This feature is of value to Auditors or audit teams because when used in conjunction with the powerful reporting tool, verification of assets becomes a simple task thus saving time and money.

SENTINEL Value-Added Features

5.2.1 Integration

SENTINEL was developed to provide a level of integration and scalability. The current system utilizes ODBC data sources and can thus be linked to numerous different databases. This will provide the client a level of freedom and alleviate the need to purchase costly database systems. Database such as MsSQL, MySQL, MsAccess and Oracle are fully supported.

Furthermore, by using ODBC and SQL queries, SENTINEL can be integrated into a wide range of other applications including: Finance Systems, Procurement systems and Data locators.

Although a comprehensive list of pre-defined reports are available, SENTINEL provides a powerful tool called Query Builder. This tool allows users to create their own reports based on the exact information that is required.

5.3.1 Traditional Scanner

SENTINEL is also compatible with all bar-code scanner technology including hand-held, wireless and wireless with memory. This will allow the client to choose the appropriate technology as needed.

5.4.1 Bar Coded Tags

As required by national guidelines; the asset label will be an aluminum based asset tag, with black lettering. These tags will be subject to approval by the client prior to implementation. OMA has access to various external companies that supply asset tagging labels.

MMiV also has access to a wide range of competing tag technology. We will provide the client with samples, if required, of these alternative tag technologies.

One such tag, which is being used at some government departments, is comprised of a destructible vinyl compound with a metal sub-state. These tags are effective and provide a long service history. The use of these tags will also result in major cost savings since these tags are approximately 40% to 50% cheaper. The pricing for this tag has been provided in the cost schedule. Furthermore, although these tags can be removed with force, the asset that was tagged will retain a layer of residue thus making tampering easy to identify.

5.5.1 RFID Tags

RFID is poised to become the successor to bar code technology. This may lead to added expenditure in the form of new software to enable the client to access this technology. The SENTINEL system has full support for these RFID tags and no further software costs will be necessary should the client implement RFID

RFID is recommended for high value or high theft/loss items. By implementing RFID technology, items can automatically tracked by RFID Readers at all entrances and exits of a building. SENTINEL will also automatically update the location and tracking status of the asset that is being moved.

If all entrances and exits point within a building are fitted with RFID readers, then all RFID tagged assets will be monitored if they are moved through these exist. In addition, the readers can be complemented with an optional CCTV camera in order to deliver still images of these entrances and Exits at the time of detecting an RFID tag. This image can be stored to a server with the RFID information displayed on the physical image. The image will contain the following data:

- Date & Time
- RFID reader point
- RFID Tag number
- Picture of the Location where the RFID Tag was Detected

The asset take on will allow for barcodes to be utilized in conjunction with RFID tags. Once all Assets are entered into the system and all entry and exit point RFID readers are active, it will be difficult to move any movable assets in and out of the building without the SENTINEL system recording it. An audible sound will also be heard when a RFID tag is moved within the proximity of a RFID reader.