Purpose

The purpose of this document is to describe the initial setup process and on-going usage of the TK-PC and ImproX integration.

The requirement

Integrate TimeKeeper-PC and ImproX by making the required interface between TK-PC and ImproX seamless and non-redundant.

The required interface includes the following:

a. Employee/ TAG maintenance.
b. Processing Logged Transactions.
c. Access Control Reports.

Definitions

TimeKeeper–PC (TK-PC): a Time and Attendance application. TimeKeeper is a product of Lavie TimeTECH Ltd. TK-PC is a reference to TK2000 (the 32-bit version of TK) and TK-SQL (a Client Server version of TK based on MS-SQL Server).

ImproX/ImproNET: an Access Control System, which includes software and hardware. ImproX/ImproNET is a product of Impro Technologies South Africa. ImproX/ImproNET software consists of two applications: Access and Engine.

Access: The ImproX/ImproNET Software which is used for setting up the access control parameters i.e. Controllers, Readers, Tag Holders, Time-Zone restrictions etc. These parameters define the Access Control System.

Engine: The ImproX/ImproNET software which controls and maintains the Access Control system

InterBase: The database used for the Access Control system. Both ENGINE S/W and ACCESS S/W store and update data in InterBase database. The default name of the database file is IMPRONET.GDB.

EasySoft: The producer of the ODBC Driver for InterBase 6.0. This driver is used by TK for accessing ImproX/ImproNET database e.g. updating badge termination date etc

Concept & Background:

The TK-ImproX integration supports the following functionality:

- **Operation & control of the badge scanners** i.e. ProxMate
- **Import of all clock punches from the TRANSACK** Table of ImproX into TK2000. The system converts the contents of TRANSACK into ImTRANS.DBF file (in TK2000 only). The file will hold **all** the entries & exits received from the reader (i.e. including access control entries & exits which are needed for access control reports).
- In TK-SQL, all transactions are read directly from InterBase Table (TRANSACK). In other words, ImTRANS.DBF file will not be used.
- **Manual polling** – The end-user will be able to poll manually the TRANSACK file. This option is required to provide the same functionality as the "Read backup punch file" option in TK2000 (i.e. the option of specifying a date range for the polling program in order to manually re-read the TRANSACK file).
- **Report generation** – Generating access control reports.

Setup steps

1. ***Installing the relevant programs and files***
2. ***Files upgrade and Expansion***
3. ***Installing EasySoft ODBC Driver***
4. ***Installing MDAC 2.6 (or later)***
5. ***Specifying general system parameters within TK's system Configuration File***
6. ***Specifying the reader type and the clock port per user within "Users Definition"***
7. ***Assigning reader levels within "Reader level assignment" program***
8. ***Customizing the employee screen***
9. ***Assigning badges (Tag parameters Setup)***
10. ***Access Control Reports***
11. ***Maintenance: Re-Reading polled transactions***
12. ***Maintenance: Backup and delete records within TK's DBU***

Note: Steps 1 & 2 are relevant ONLY FOR EXISTING TK INSTALLATIONS i.e. when it is required to implement TK-IMPROX Integration. The following TK releases (i.e. TK 2000 release 3 and later) will hold the relevant programs/files built-in.

Adding ImproX integration to an existing TK2000 installation:
Please note that, as a rule, we strongly recommend that the system be fully installed through TK6.01 (which will include all the relevant updates) rather then adding manually the above files.

Setup Steps

Step 1: Copy programs and files

- Copy the following files into the "..\TK2000\" directory: *.EXE, *.DLL and TRXF.INI.
- Copy the following files into the "..\TK2000\DATA" directory: ImTRANS.*, ImLEVEL.*, ImSITE.*, ImREADER.*, Level.*,IMAGE.*.
- Copy the following files into the "..\TK2000\DATA\ENGLISH" directory: MES40.DBF, MES80.DBF, ERRORS.DBF.

Programs and Files required

DEMPLOY.EXE	
DIMCARDS.EXE	
SYSCNF.EXE	
IMSYNCFL.EXE	
TRXFERIM.EXE	
USERS.EXE	
PROXMATE.DLL	
RIMTRANS32.DLL	
TRXF.INI	
TK2000.EXE	
TRXF32.DLL	
TRANSERR.EXE	
DIMREAD.EXE	

Data files required:

ImTRANS.*	
SYSEXT.DBF	
ImLEVEL.*	
ImSITE.*	
ImREADER.*	
Level.*	
USERS.*	
MES40.DBF	
MES80.DBF	
SYSNAMES.*	
ERRORS.DBF	
IMAGE.*	
SELECT.*	

Step 2: Files upgrade and Expansion

- Upgrade* the following files: SELECT.* , SYSNAMES.*.
- Expand* the following files: SYSEXT.DBF

Note: If you ran TK2000 update i.e. Jan-02 Edition (or later) then Skip STEP 2

** Upgrade/Expansion of data files (VIA TK2000 MENU):

UPGRADE (or file upgrade) is performed through the "Update System Files" utility (located in TK's Maintenance-Utilities menu) where:

Source path = location (folder) of new data files
Destination = location (folder) of existing data files.

EXPAND (or file expansion) is also performed through the "Update System Files" utility (located in TK's Maintenance-Utilities menu) where:

Source path = location (folder) of existing data files.
Destination = location (folder) of new data files.

After the expansion process had been completed, copy the expanded files (i.e. "Source") to the DATA directory (i.e. overwriting the existing files).

Step 3: Install EasySoft ODBC Driver

Install EasySoft ODBC for InterBase 6. If InterBase database is not installed locally, install the EasySoft driver after modifying the file "..\Windows\system32\drivers\etc\Services". Following is the required addition to the "Service" file: "3050 gds_db/tcp"

Step 4: Install MDAC 2.6 (Or later)

Step 5: Specifying general system parameters within TK's system Configuration File

The following definitions are required within the system configuration file:

1. ImproNET Integration Activation i.e. "IMPRO System" tab (figure 1)

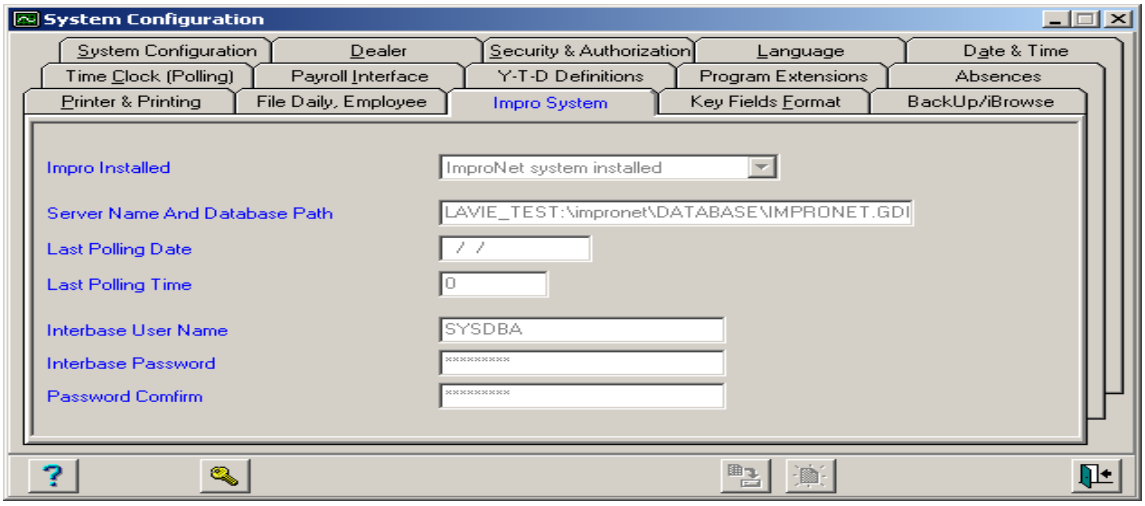


Fig. 1

- Set "Impro installed" to "ImproNET System Installed"
- Specify the database path e.g.
  LAVIE_TEST:\ImproNET\DATABASE\IMPRONET.GDB
  Server's Name Database path

  ***NOTE*:** The server's name refers to the **INTERBASE server name**.
- Last Polling Date/Time – These files are to be blank when "ImproNET" is used. In order to support multiple engines, the "last polling Date & Time" are saved on the SITE level i.e. see table **IMSITE**.
- InterBase Username and Password – The username and password are used for accessing ImproNET application, in order to retrieve and/or update data e.g. updating tag numbers, specifying expiration date, retrieving reader names etc.

2. Specifying Time Clock polling parameters, i.e. Time Clock Polling tab

The "Time Clock polling" tab defines TK2000's linkage to the ImproX database. Unlike "standard" polling (where TK2000 "polling" actually runs a communication program), TK accesses ImproNET's database (for retrieving all transactions i.e. Time and attendance AND Access control), extracts all T&A transactions and updates TK's Daily file relatively.

ImproX polling process – Detail

a) Searching the [TRANSACK] Table and extracting all entry & exit punches that occurred following the previous "polling" session into the ImTRANS.DBF file (i.e. the system converts the Impro database into a FoxPro database.)

b) Filtering (extracting) the relevant attendance entries & exits from the ImTRANS.DBF file into TK's Daily file and TR*.* backup file (i.e. the system identifies the clocks that generate attendance information, as opposed to clocks that generate only access control data. and transfers the entries & exits received from those clocks into the TK's database).

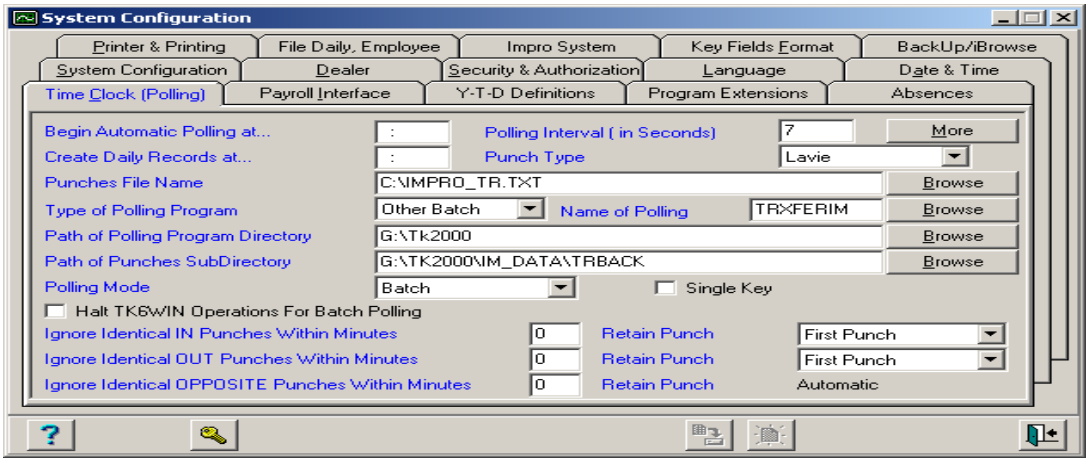


Fig. 2

Screen Input Parameters:

- **Punch Type** – set to "Lavie".
- **Punches File Name** – The "Punches file name" determines the name and location of the PUNCHES.TXT file, specifying the T&A transactions. This definition is completely at the user's discretion i.e. any valid location and/or filename can be selected.
- **Type of Polling Program** – Set to "Other Batch".
- **Name of Polling Program** – Set to "TrxferIM" i.e. located in the TK2000 directory.

- **Path of Polling Program Directory** – Set to the directory of the "TrxferIM" file i.e. TK2000 directory.

  NOTE! "Halt TK2000 operations for Batch Polling" check box should **NOT** be checked.

Note: If the data path is not "..\|TK2000\|DATA", then "..\|TK2000\|TRXF.INI" file must be configure as follows:

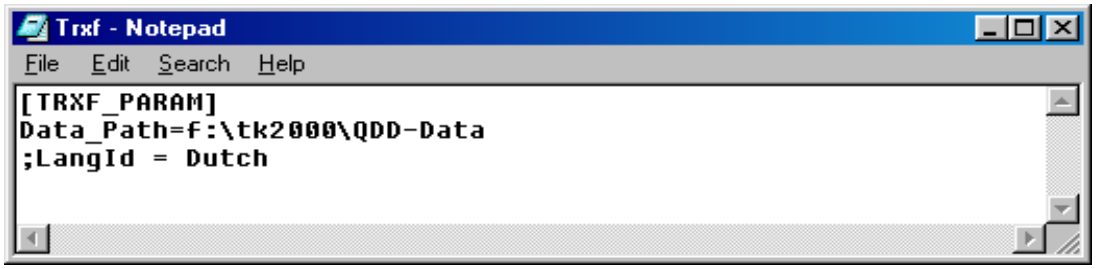


Fig. 3

TRXF.INI is a standard ASCII file. TRXF.INI is used for overriding the following settings:
a. Data path definition i.e. when the data path is not set to "..\|Data"
b. Language definition i.e. when the language is not set to English

As specified above if the data path IS NOT "..\|DATA", specify the data path relatively. As per the language (i.e. if the language is not English), delete the remark code (;) and specify the language identification e.g. Dutch.

Step 6: Specifying the reader type and the clock ports within "Users Definition"

User definitions are required to determine the scanner type (i.e. "ProxMate", "Uni-Scan" or "Host-Link") and the connection parameters (i.e. COM Port and reading speed) used by each user.

Following are the required definitions within "Users Definition" program i.e. "IMPRO" Tab:

- **Scanner type** – Specify the scanner type used (i.e. "ProxMate", "Uni-scan" or "Host Link").
- **COM port number** – Specify the COM port to which the scanner is connected (should usually be set to 1)
- **COM port Baud rate** – Specify the COM port's baud rate (should usually be set to 9600).

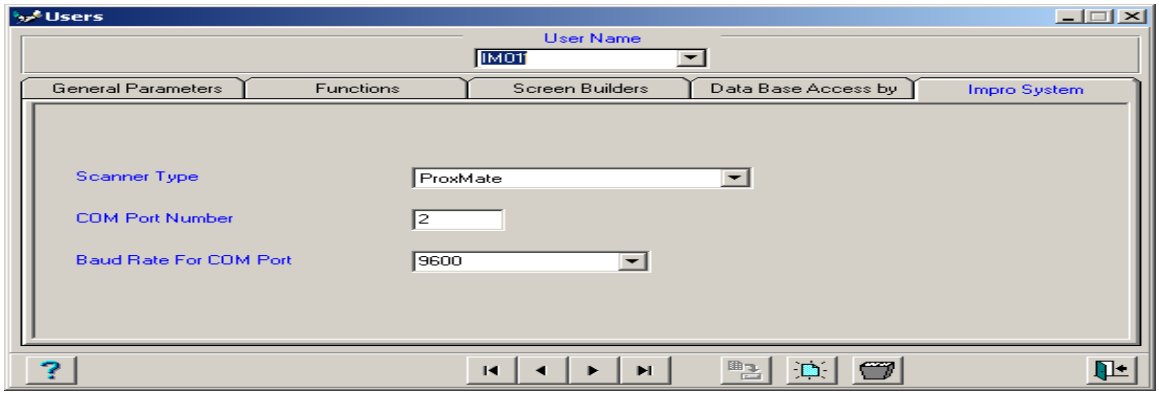


Fig. 4

Step 7: Assigning reader levels

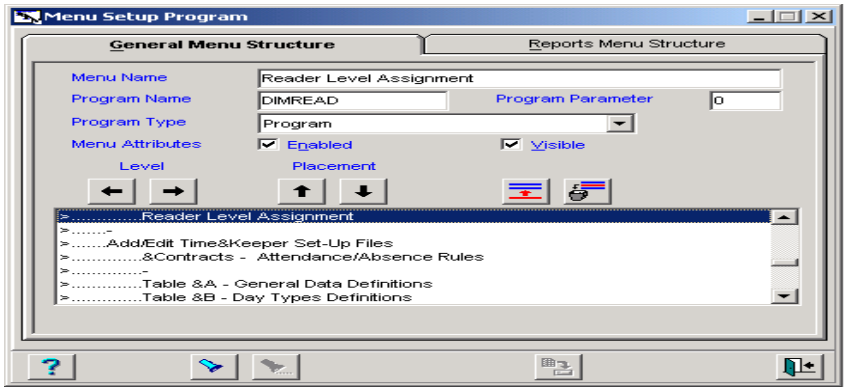
7.1 Add "Reader level assignment" program to the menu

The program was designed to enable the end-users assign each readers level. The option should be added to the menu using "TK's Menu Configuration" program:

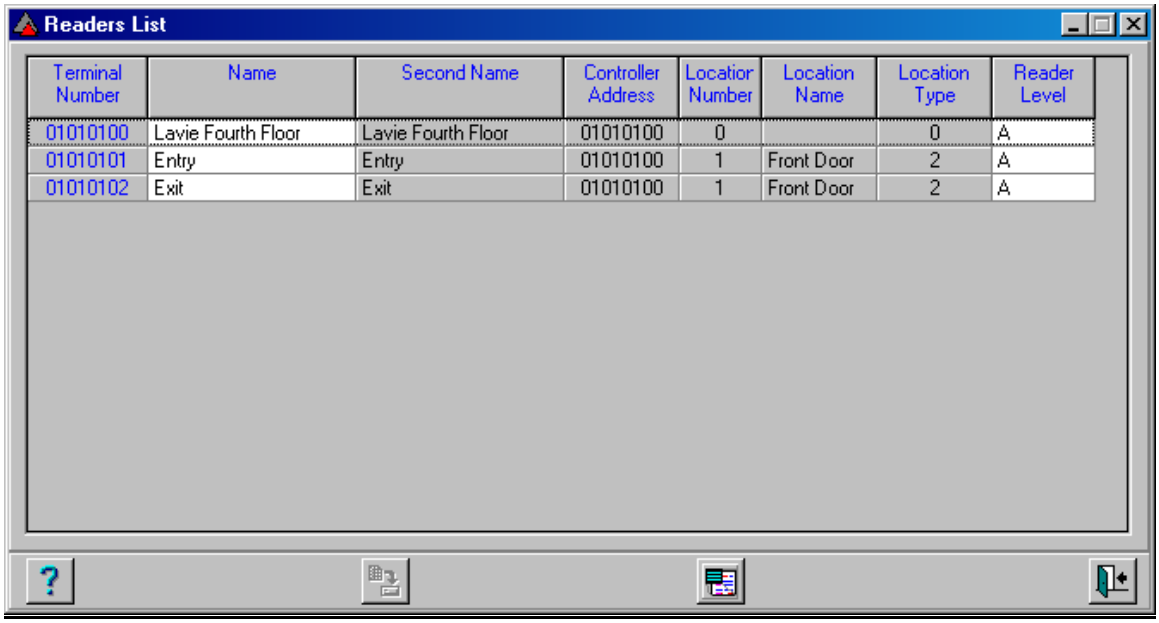
a. Program location – Place the option within the **Setup Menu** i.e. "Add-Edit shared setup files" / "Reader level assignment".

b. Screen Input Parameters

- **Menu Name** – Set to "Reader level assignment"
- **Program name** - Set to "DIMREAD".
- **Program Parameter** – Set to "0".
- **Program Type** – Set to "Program".
- **Attributes** – Set to Enabled and Visible

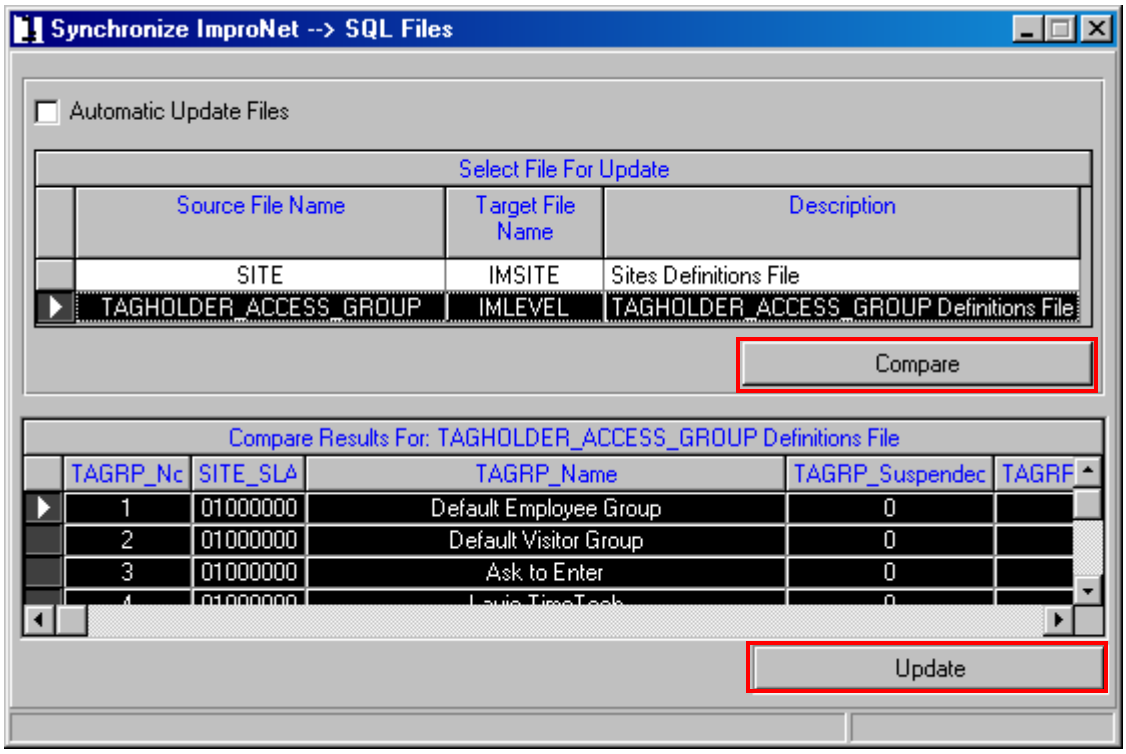


7.2 Assign Reader levels



The reader details (i.e. Terminal number, Name, Address and location) are retrieved from ImproNET's database. Assign the reader level (A-Z) to each reader, and save the settings. By default, reader level "A" is used for T&A while levels "B-Z" are used for Access Control.

Click on the Synchronize button  , select every row and click Compare and then Update.



Step 8: Customizing the employee screen

8.1 Access Definition Setup

- Load "Employee Screen Configuration" i.e. from "Setup \ Add Edit Configuration files" Menu
- Setup a new Tab i.e. "ImproNET Integration"
- Add the following fields to the employee screen: [Third Sort], [User Field 2], [Report_MSG].

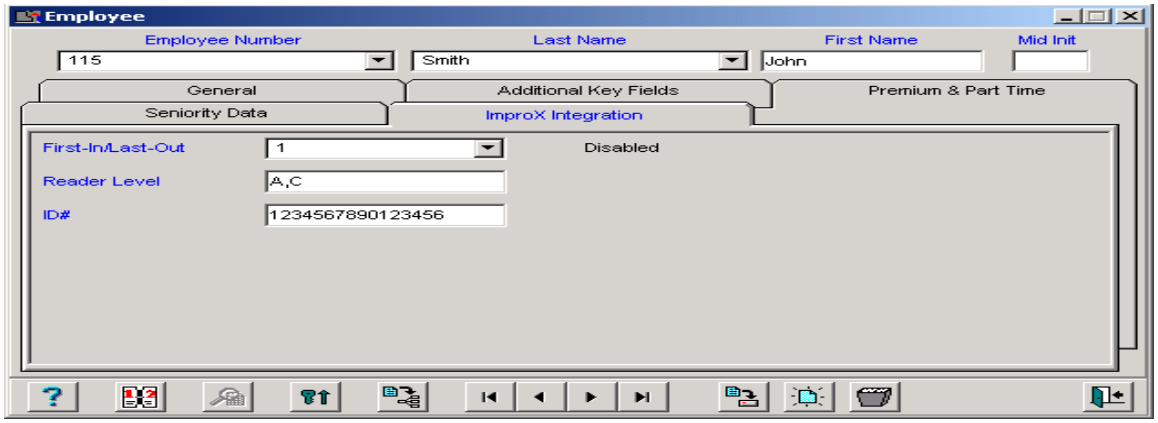


Fig. 5

The fields [Third Sort], [User Field 2] and [Report_MSG] use the integration process as follows:

- **[Third Sort] -** [Third Sort] is used to set the "First-In/Last-Out" functionality for the employee. The options are:
  Disabled - "First-In/Last-Out" functionality is not used.
  Enabled - "First-In/Last-Out" functionality is in use.

  A. <u>When the "First-In/Last-Out" functionality is set to "Disabled" (code 1)</u>:
  - If the reader level is "A", all T&A transactions from readers of group "A" will be read.
  - If the reader level is 'Blank', the default of the reader level is "A" and all T&A transactions from readers of group 'A' will be read.
  - If the reader level is 'B-Z' than all T&A transactions from readers of group B-Z will be read.

  B. <u>When the "First-In/Last-Out" functionality is 'Enabled' (code 2)</u>:
  - The "Reader Level" field is ignored.
  - Only the first punch and the last punch will be polled as "First In & Last Out"

- **[User Field 2]** - [User Field 2] is used to set the employee's access level. The access level determines which readers are used for attendance. By default, level [A] is used for attendance while all other levels [B-Z] are used for Access Control.

  If the reader level (i.e. within the polled transaction) equals to the level specified within the employee master file, the punches will be transferred into the Daily file. If the reader level (as specified within the polled transactions) differs from the level specified from the employee master file, then the punches will be used for Access Control only.

Notes:

b) The access levels are designated by alphabetic letters i.e. A, B, C …Z.
c) In order to assign more then a single access level, separate each access level (groups) by commas e.g. A, C, H.
d) Leaving the [User Field 2] field blank will automatically assign the employee to the default access level i.e. access level A.

- **[REPORT_MSG]** - [REPORT_MSG] is used to set the ID Number for the employee. The reason for NOT using the standard ID field is the requirement of 16-character field (i.e. the standard ID field is a 12 character field).

Step 9: Assigning badges (Tag parameters Setup)

General

TK's operator does not know the badge number when setting up the employee within the system.

In order to identify the badge number, TK integrates ImproNET database and ImproNET's hardware. The integration enables scanning the badges within ImproNET hardware and retrieving the badge number to TK's database.

After the badge had been scanned, set access level definitions for the Tag Holder. If no access level definitions are specified, the badge will be rejected by the system as an invalid badge.

TimeKeeper supports both numeric and alphanumeric badge formats. This is defined within TimeKeeper's system configuration file (i.e. "Key Fields Format" tab). However, **when ImproNET integration is installed, the badge number field has to be set to a character format**.

Setting up employees – **Employees must be setup within TimeKeeper** i.e. not within ImproNET. Setting up employees externally to TimeKeeper might cause problems in the employee number format.

Setup steps:

a) Set-up and employee within TimeKeeper in the standard procedure (i.e. employee number, name, organizational assignment, contract number etc).

b) In order to assign a badge number, Select "More" button in "Badge" Section:

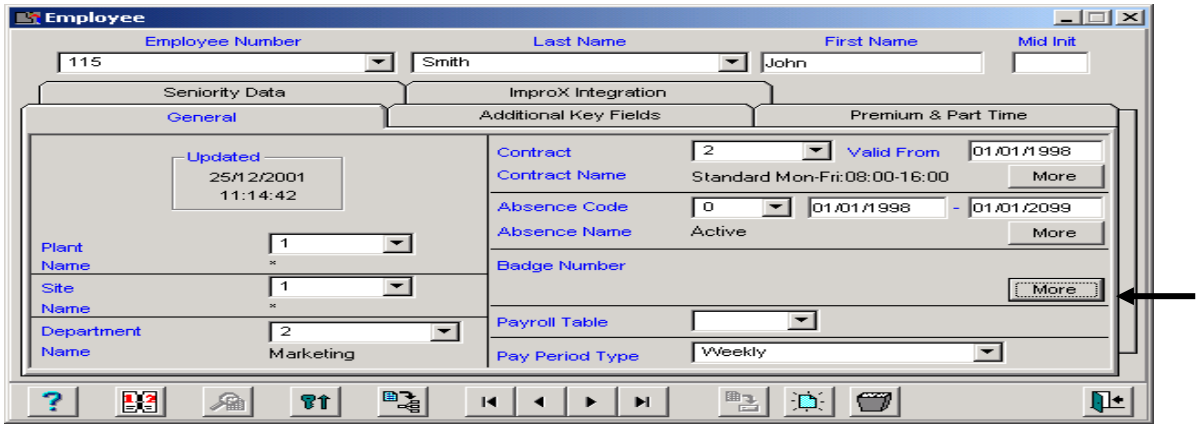


Fig. 6

Selecting this button, accesses the IMCards screen (see Fig. 7). This screen displays the employee's badge related information (badge number, type, start & end date etc). The following screen (Fig. 7) appears.

c) Specify general badge data i.e. ImproNET badges / "General Data" tab

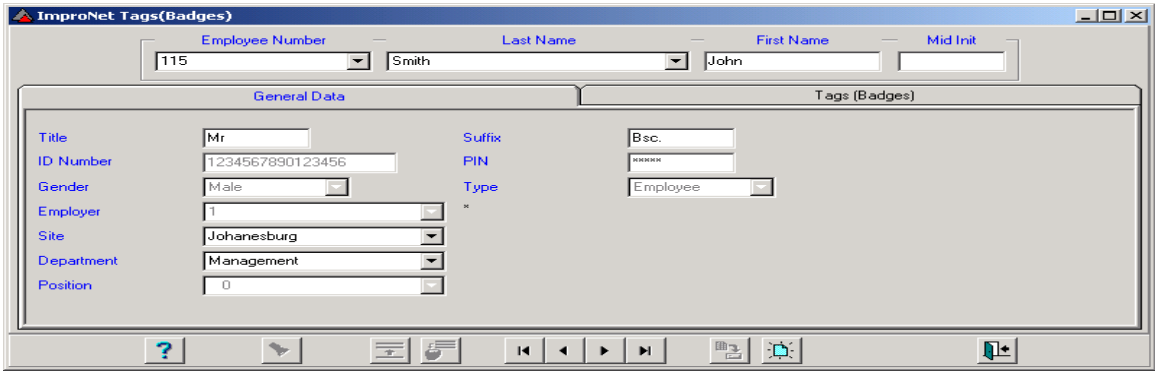


Fig. 7

"General Data" tab / Screen Input Parameters

Title Specify the employee's title e.g. "Mr.", "Mrs." Etc.

ID Number The ID Number designates the employee's ID. The ID Number is retrieved from the TK's employee master file, therefore the end-user will not be able to modify the ID Number from this screen (Figure 6).

Gender The employee's gender i.e. retrieved from TK's database.

Employer The Employer number is TK's Plant number i.e. retrieved from TK's database. Values in "Employer" field cannot be modified within this screen (Figure 6) similarly to "ID Number" and "Gender" field.

Site A site number (and description) retrieved from ImproNET database. Site is the highest level in terms of access control e.g. assigning site "A" to Employee "AA007" means that Employee "AA007" is allowed to access ONLY site "A".

Department The department number retrieved from ImproNET Database i.e. department numbers may be different between ImproNET and TimeKeeper.

Position The Position is TK's profession i.e. retrieved from TK's database. Values in "Position" field cannot be modified within this screen (Figure 6) similarly to "ID Number" and "Gender" field.

Suffix Optional suffix e.g. "Dr.".

PIN The password used for employee identification. After swiping his card, the hardware requires user password for identification.

Type User type i.e. "Employee" Or "Visitor". Currently the system supports ONY "Employee" type employees.

d) Assign the badge number using "Add a New Tag" button i.e. within "Tabs" tab:

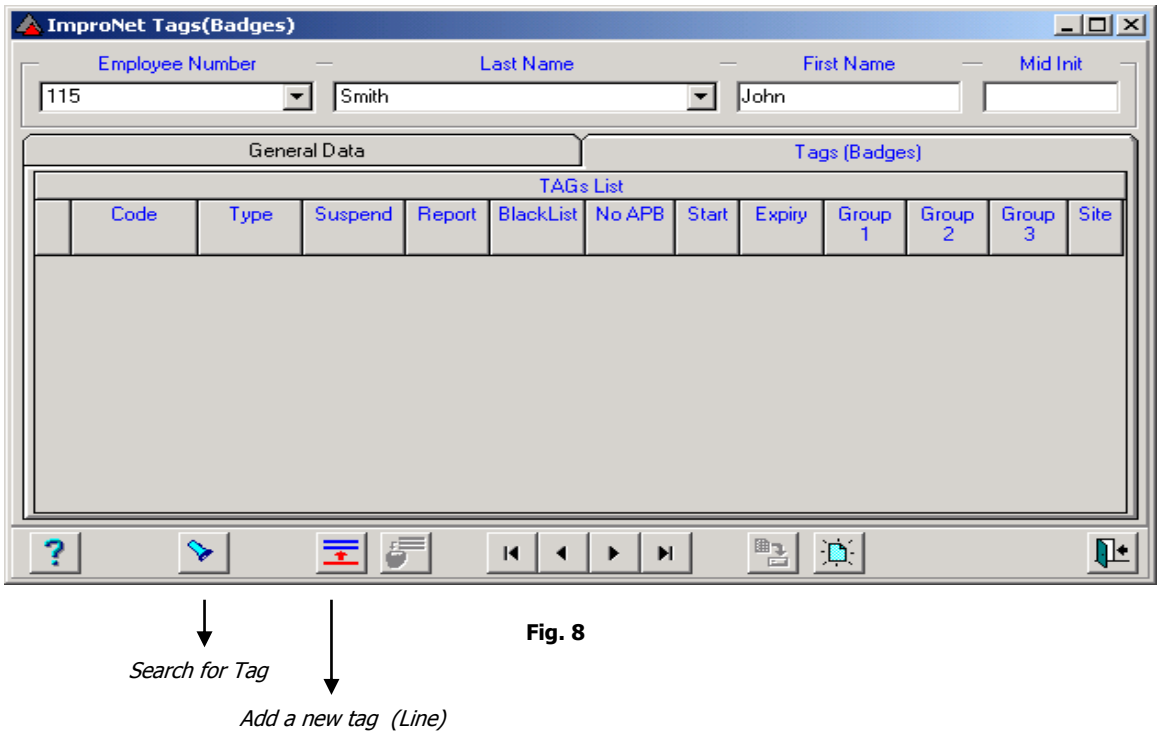


Fig. 8

The following screen appears:

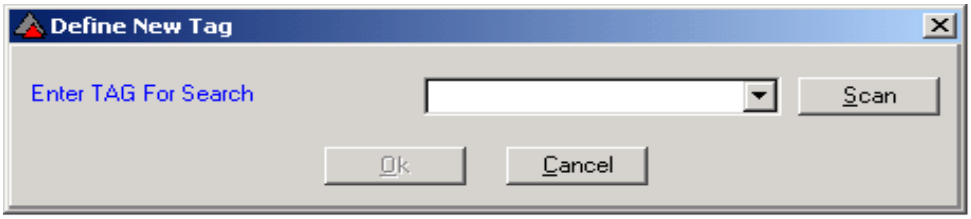


Fig. 9

In order to scan card, place the card on the hardware (e.g. ProxMate) and press the "scan" button. The system will identify the badge number:

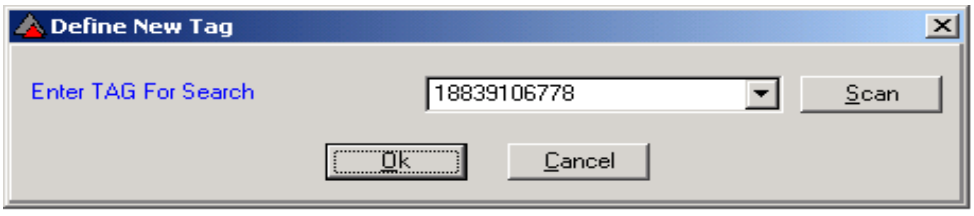


Fig. 10

Select [OK] button for assigning the Tag number to the ImproNET Badges screen (Fig. 11).

e) Specifying additional TAG HOLDER parameters

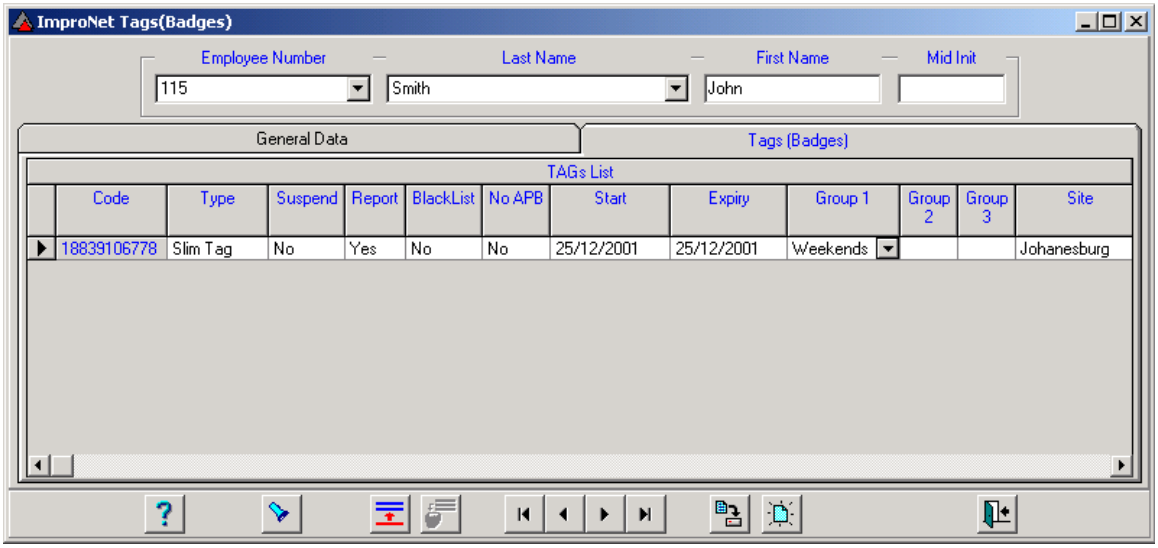


Fig. 11

Screen Input Parameters

Code Badge Number. Identifying the tag number is the result of the scanning process.

Type The badge type is identified automatically during the scanning process. The system supports the following badge types: Slim Cards (5 Bytes), ISO Animal, WriTag 2048, WriTag 128, Barcode (Code 39), Magstripe (ABA Track 2) and Keelog.

The end-user may manually select/change the badge type for assigning a badge manually e.g. inactive scanner etc.

Suspend Suspend the employee (tag Holder) by specifying "Yes" in this field. In any other case, the field will be set to "No" as a Default.

Report By default all access control transactions (i.e. successful and deniable transactions) are saved within ImproNET's database. Another possible setup is saving ONLY deniable transactions.

Blacklist Blacklist the tag means that the tag will be denied accessing the zone, and an action can be linked to an access attempt. Specifying "Yes" will blacklist the tag holder.

No APB No Anti Pass back. "Anti Pass Back" is a delay time between an exit to the following entry in the same zone. The anti pass back lockout time is defined in the zone level within ImproNET S/W. The "No APB" parameter in the employee level designates whether to override the ZONE setting or not.

Start Start date used for validity check. The default setting is to the current date.

Expiry Expiration date used for validity check. The default setting is to the current date.

Group 1-3 Each GROUP has individual definitions of time-pattern restrictions, allowed areas etc. Use the three access-groups combo boxes (drop down menus) to select the groups required. Each individual tag can be assigned to a maximum of 3 access groups.

Notes:

To assign the employee a current badge, click on the "find employee by tag" button instead of using the "Add a new Tag" button. The pop-up enables the user to "link" the employee with an existing badge.

All the definitions within section (e) also exist within ImproNET's Tag Holder screen.

Step 10: Access Control Reports

The following reports were added to the system:

- **On-site & Off-site report (RIMSITE)** - Lists employees which were either on-site or off-site at a particular Time/ Date. The report combines the capabilities of two ImproX reports designated "on site" and "off-site".

- **Clocking Transactions report (RIMTRANS) -** Lists all entries & exits occurring at a particular Time/ Date. The report's select options include levels, readers and status.

- **T&A & Access Control Pattern report (RIMTRAN4) -** Lists employees who have an Access In or Out without a T&A In or Out.

- **T&A & Access Control Variance report (RIMTRAN5) -** Lists employees who have a predefined time difference between their Access transactions and their T&A transactions.

- **Access Off-site report (RIMOUT) -** Lists employees who have a predefined time difference between their Access Out and In times.

- **T&A Break report (RIMBREAK) -** Lists employees who have not taken a break within a predefined time zone at a particular Date.

- **Access Exceptions report (RIMEXCPT) -** An advanced T&A Access Pattern report that enables exclusion of certain time zones and break periods.

Step 11: Re-Reading polled transactions

The program was designed to enable the end-users re-reading polled data. The option should be added to the menu using "TK's Menu Configuration" program:

a. Program location – Place the option within the Activities Menu i.e. "Read Backup Punch File ImproNET Format

b. Screen Input Parameters

- **Menu Name** – Set to "Read Backup Punch File (ImproNET Format)"
- **Program name** - Set to "TrxferIM".
- **Program Parameter** – Set to "0".
- **Program Type** – Set to "Program".
- **Attributes** – Set to Enabled and Visible

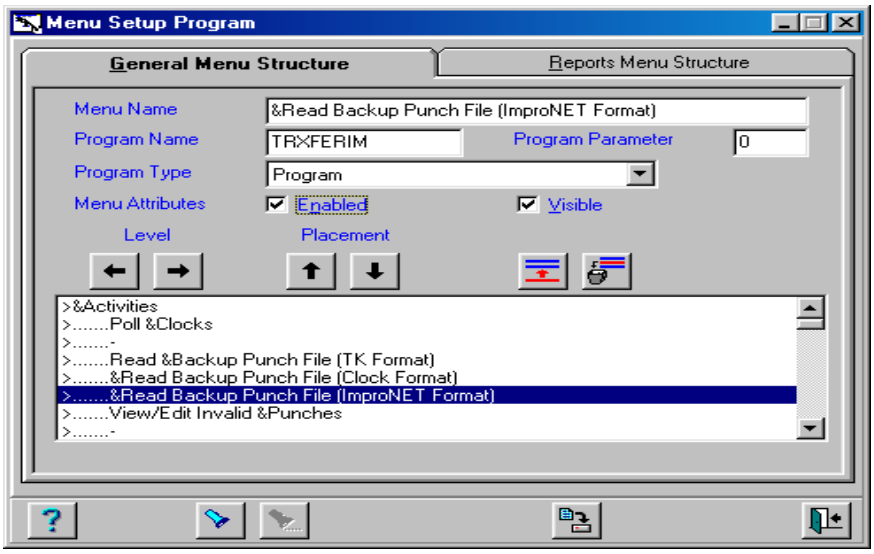


Fig. 12

Running the process will enable the end-user to import ImproX transactions, according to a pre-defined date range.

Initial Use / First time polling

TimeKeeper (i.e. IMSITE Table) holds the date and time of the last polling interval. These fields are updated each time a polling operation occurs.

Updating the last polling data and time (in each polling) was designed to enable polling ONLY "new" transactions i.e. transactions that have been added since the last polling instead of polling the entire TRANSACK table.

In a brand new installation, the fields designating the "Last polling Date & Time" are blank. In other words, in the first polling, TimeKeeper polls the entire TRANSACK table.

In order to prevent polling the entire Table (i.e. TimeKeeper is installed today BUT the TRANSACK table includes 3-years of information) **WE STRONGLY RECOMMEND THAT THE FIRST POLLING WILL BE PERFORMED MANUALLY.**

By running the process manually for the first time, in which the user specifies a (reasonable) date range for the polling process, the fields "Last polling date & time" within IMSITE table) will be updated.

Step 12: Maintenance – Backup and Delete Records

The ImTRANS file can be lost or corrupted. Backing up the ImTRANS file ensures that you have a valid copy of your system. Should the file be lost or corrupted, you can restore backed up files from the archive.

The Backup & Delete utility Backs up the selected file to a zipped archive file, and then deletes the records that were backed up from the file.

1. From the 'Maintenance' menu, choose the Back up/Restore Daily &Pay-period files.
2. From the drop-down list, select the 'ImTRANS ' file.
3. Click the 'Back Up & Delete' button. The 'Select Backup file' dialog box is displayed.
4. Choose a backup file to back up to and click OK.

Appendix A: Lavie Clock transactions / 15 character-badges support

All "Lavie clock transactions formats" supports a 15-charcters long badge number, as follow:

Field No	Length	Offset for 6 -10 character badges	Description	Offset for 15 character badges
1	2	0	Terminal Number	0
2	1	2	Code indicating the badge length: 0 = 6 Characters 1 = 10 Characters 2 = 15 Characters	1
3	6	3	Badge number	3
4	4	9	Badge number (Filler for 10 character-badges)	9
	5		Badge number (Filler for 15 characters badges)	13
5	1	13	Space	18
Other fields – UNCHANGED				

The following programs are to be updated:

(1) TRXFER (Clock Polling) – December 10th, 2001 (or later).
(2) TRANSERR (View/Edit Invalid Punches) - December 10th, 2001 (or later).