1 EXgarde PRO™ Based Access Management System – Overview

EXgarde PRO™ is a windows-based, fully featured access management PC software application providing flexibility and ability to tailor the software to specific customer requirements.

Advanced integration to industry-leading manufacturers of CCTV equipment and biometric technologies is also possible using the EXgarde PRO™ platform.

EXgarde PRO™ features, as standard, photo-identification and badge design functions.

The software is designed to operate either on a single desktop workstation or across multiple workstations and sites, making it ideal for medium to large scale installations.

1.1 System Architecture – Overview

EXgarde PRO™ operates around a central SQL database, which resides on one of the workstations (designated as the server), a dedicated server or held on a full Microsoft SQL Server (2005 or 2008) provided by others. All generated events are written to the database in real time. All additional EXgarde PRO workstations communicate with this single database.

EXgarde PRO™ is configured as default with two tenants; however, additional tenants can be added allowing one system to be used to control access in a multi-tenanted building. Tenants are supplied as an additional licence option.

Each of the workstation connections requires an additional workstation licence. TDSi supply licences in 1, 2 or 4 additional licence packs. Up to 20 workstations can simultaneously connect to the one database, however if a greater number of workstation connections is required then this can be arranged. Please contact TDSi if this is required.

Communications to the system door controllers is made via one or more communications servers. In the case of smaller systems, this can be the same PC as the one on which the database resides. However, in larger systems it is strongly recommended that the PC for communication to the door controllers is kept separate to that on which the database resides. Note that the system may comprise multiple communications servers to ensure good system performance.

1.2 System Architecture - Number of Workstations

EXgarde PRO™ allows multiple workstations to be connected to a central database. The maximum number of workstations that can be connected to an SQL Express database is 5, or if the database is hosted on a full SQL server the maximum number of connections is 20, although a quotation can be supplied for systems requiring a larger number of workstations to be connected. Please contact TDSi for details. ***Note: the workstation on which the database resides and every PC serving communications count as a connected workstation each requiring a license.***

1.3 Operational Overview - Security Policies

EXgarde PRO™ works by dividing the site into access areas (or security zones). Each access area has one or more doors which allow authorised key holders to pass between one access area and another. This allows more secure inner areas to be defined where the user may want to restrict access further.

Individual key holders are placed into one of the defined access groups that have been created. Entry into an access area is allowed for an Access Group rather than individual key holders.

Schedules are applied to access groups. Schedules are based around a weekly timetable that repeats on a weekly basis. There is no limit to the number of schedules that can be applied.

1.4 Database – Maintenance

EXbackup™, a database maintenance tool is provided as standard with EXgarde PRO™. This provides a means to defragment and compact the database to allow it to run efficiently and to keep the database size to a minimum.

1.5 Database – Backup

EXbackup™, a database maintenance tool is provided as standard with EXgarde PRO™. This provides a means to back-up and recover the database contents. The back-up can either be carried out manually or it can be scheduled.

2 Features

2.1 Help System

EXgarde PRO features a full context-sensitive help system.

2.2 Antipassback

Four types of Antipassback are offered:

- Timed Antipassback – where the same key may not be used to gain access more than once within a specified period. That key may however be used to gain access via another door within that specified period.
- True Antipassback – used where there is both an in and an out reader. The key, once used to gain access cannot be used to gain access again until it is presented at the out reader.
- Zonal Antipassback – where the same key may not be used to gain access to an inner area within a perimeter zone until it has been validated at the perimeter zone reader(s). This functionality can be spread across a maximum of 100 readers communicating with a single communications host.
- Software Global Antipassback – this is supported across a maximum of 100 readers communicating with a single communications host.

Antipassback is ‘hard’ whereby an event is logged that Antipassback has been infringed and the user is prevented from passing through the door. This is opposed to what is described as ‘soft’ Antipassback whereby only the event is logged but the user is still allowed to pass through the door.

A forgiveness setting allows all cards that are currently subject to Antipassback rules to have their Antipassback status automatically cleared (either at midnight or midday).

It is not possible to achieve a global Antipassback system whereby all doors within the access control system are covered.

2.3 Number of Allowed Doors

EXgarde PRO features, as standard form support for up to 128 Doors. An additional upgrade is available providing support for an unlimited number of doors.

2.4 Number of Allowed Card Holders

EXgarde PRO does not restrict the number of Card Holders that can be entered into the application database. However it should be noted that individual types of controllers have their own restriction in terms of memory capacity and therefore the number of card holders or users can be stored.

2.5 Operators

Individuals can be assigned their own unique log-in to EXgarde PRO. There is no limit to the number of EXgarde PRO users that can be entered into the system. Operators are assigned their own individual User Name and Password. Additionally it is possible to restrict individuals from accessing certain menus and parts of the software.

2.6 Controller Compatibility

EXgarde PRO™ is fully compatible with the full range of current EXgarde PRO™ access control units, including

- MICROgarde I™
- MICROgarde II™
- EXcel2™
- EXcel4™
- EXpert2™ (including IP models)
- EXpert4™ (including IP models)

It is not possible to connect to any other third-party access control units using EXgarde PRO™.

2.7 Communications - Overview

A communications engine, *EXcomms*™ is used to communicate to all of the connected access control units.

The system should be designed such that no more that 20 Access control units are connected to each communications port. No more than 4 communications ports should be allowed on each PC. These recommendations are considered as absolute maximum parameters to provide adequate performance in systems where network traffic is considered as low to medium. For high network traffic situations, consideration should be given to limiting the number of controllers per port. Additional PCs can be added to operate as communications servers to allow a greater number of door controllers to be connected.

2.8 Communications – Method

Communications to door controllers can be achieved using one or more of the following methods

- RS-232 (single communications port to single door controller)
- RS-485 (single communications port to one or more door controllers connected on a dedicated network). A separate RS-232 to RS-485 converter will be required if connecting via this method to all door controllers, except MicroGarde I and MicroGarde II door controller types, which have integral converters.

- TCP/IP (single communications port to one or more door controllers connected on an Ethernet network)
- PSTN modem (single communications port connected to a PSTN modem using RS-232, to a single door controller)
- GSM modem (single communications port connected to a GSM modem using RS-232, to a single door controller)

2.9 System Requirements

It is important that the PC being utilised on the system meets certain minimum requirements. The general minimum specifications are shown below. For complex systems, always consult TDSi for advice.

- Intel Core i5 2.4GHz or better
- 4GB RAM
- 500GB Hard Disk (250GB free space minimum)
- USB port for License Key
- Serial or Ethernet ports (as required) for Access Control Network
- Operating systems supported (Microsoft Only)
  - Windows XP Professional
  - Windows Vista Professional
  - Windows 7 Professional or Enterprise
  - Windows Server 2003
  - Windows Server 2008 and 2008 R2

It is strongly recommended that on larger systems the EXgarde Communications™ service must be installed on one or more workstations or a virtual platform. This is necessary for optimum system performance.

2.10 User Interface – Overview

EXgarde PRO™ is arranged in an easy to use user interface.

- A Menu Bar at the top of the screen allows access to basic program functions
- A Toolbar provides shortcut icons to key administration tools (copy, cut, paste, delete etc.) and key aspects of functionality.
- A secondary toolbar allows further access to various functions depending on what has been selected.
- A Summary View allows items of equipment to be easily selected.
- A Working Area provides more detail and control for the currently selected item in the equipment tree. Additionally this area provides other information such as a listing of the current occupants in a particular area.
- An Alarm Manager area shows all currently active alarms and status.
- An Event pane displays all user and operator events together with events that are being received from the door controllers within the system.

2.11 Home Page

A customisable Home Page can be defined for each of the operator log on credentials. The Home Page can consist of shortcuts to tasks that are applicable to that operator. In addition the background of the Home Page can be changed providing a means to brand as required.

2.12 Wizards

A set of Wizards guide the user through commonly performed tasks, for example:

- Adding a new controller to the system
- Adding a Keyholder and issuing a key
- Setting up a schedule
- Setting up access areas.

Each of the Wizards show a story board showing clearly the steps involved in the task and the current position within the procedure. Clear instructions are given at each stage and a prompt area gives further information by providing the operator with guidance on the information that needs to be entered.

2.13 Interactive Graphical Site Plans

EXgarde PRO™ allows the importation of an image for use as a site plan. Supported formats are Windows or OS2 Bitmap (*.bmp), JPEG (*.jpg), Compuserve Graphics Interface Format (*.gif) and Tagged Image File Format (*.tif). Note: to import a site plan from Autodesk AutoCAD, it is necessary to export it in one of the supported file formats first. No facility is provided to edit the image once imported.

Any of the equipment icons from the equipment tree can then be placed in their relevant places on the site plan. A full range of relevant control options is available by right-clicking on the icon (for example in the case of a door, the door can be released, unlocked, locked, barred etc.)

The icons are animated i.e. the status of the item of equipment is shown on the icon.

Additional site plan icons can be placed on the site plan allowing the user to ‘drill-down’ into other site plans (for example, other floors of the building).

2.14 Alarm Manager

EXgarde PRO™ features a fully featured Alarm Manager allowing an alarm to be triggered on any event.

The Alarm Manager allows one of 12 alarm priorities to be assigned to the alarm. Additionally, an alarm procedure can be defined requiring the operator processing the alarm to enter responses to steps within the alarm procedure. All responses are logged to the database providing a full audit trail if required.

All alarms are displayed within a pane within the EXgarde PRO™ user interface and also in a separate alarm manager window for easy management and processing.

A flashing exclamation mark ‘!’ is displayed on the affected equipment icon both within the equipment tree and site plan. The system can also be configured so that a sound file (*.wav) file is played upon the alarm being triggered attracting the user’s attention to the occurrence of an alarm.

Alarms can be grouped and a schedule applied to them through use of the alarm zone feature. This means that alarms will only be generated if the alarm occurs within the scheduled period. This schedule can be overridden if required.

2.15 Photo Identification - General

EXgarde PRO™ features Photo-ID as standard. This allows a single or double-sided badge design to be generated from within EXgarde PRO™. The user has the facility of adding the following items to the card design. Card design can be of either portrait or landscape orientation.

- Free text of a font specified by the user. Text can be normal, bold, italic or italic bold. Text can be left, centre or right justified. Free text can be placed anywhere on the badge design. Size of the font is adjusted by the user resizing the text box in which the text resides.
- Image. Typically used for including company logo or emblem in the badge design, the image can be imported directly from a file of format Windows or OS2 Bitmap (*.bmp), JPEG (*.jpg), Compuserve Graphics Interface Format (*.gif) and Tagged Image File Format (*.tif). The image can be placed anywhere in the badge design and resized.
- Database text. Several text fields within the database can be included in the badge design. These include Key Holder Name and Key Number and allow this information to dynamically change.
- Database Image. This allows an image from the database to be inserted into the card design.
- Barcode. A barcode of various formats can be included in the card design, representing the same fields as the Database text.
- Forbidden Areas. Allows the user to specify areas that are not be used on the card for example it may not be wished to allow printing in the area around a contact chip on the card.
- Magnetic Stripe Encoding. EXgarde PRO™ supports encoding of magnetic stripe cards as part of the printing process.

The capture of images is achieved through EXgarde PRO software. A suitable USB camera or other camera together with a graphics capture card will be required.

2.15.1 Photo Identification – Objective Authentication

EXgarde PRO allows the image of the user to be displayed upon presentation of a card to the reader. This then allows the operator make a visual verification of the individual presenting their card before releasing the door. The image is displayed manually by double clicking on the event rather than it being displayed automatically.

2.15.2 Photo Identification – Visual Verification

EXgarde PRO features a visual verification feature that allows the automatic display of card holder images upon presentation of cards at nominated readers. The display sequence can be set to real time where the images are displayed as the cards are presented, timed so that the image advances at preset intervals or advanced manually.

2.16 Key Holder Data

Information that can be entered for individual key holders include the following

- Name (which must be unique within the tenant) of up to 20 characters
- Long Name which allows additional information to be added and can be up to 50 characters in length
- Comment field which can be up to 50 characters in length
- Additional 16 fields are available for user information, each of up to 50 characters in length.
- Capture image for the Photo ID feature

2.17 Control Keys

A Counter is a value held within an ACU that increments or decrements when access is granted or when an input is activated. It is possible to determine which readers and inputs affect a Counter, and in which direction; up or down.

Note: To make setting up Counters easier, Counter Control is an Area property rather than a Reader property. This allows you to have multiple readers affect multiple Counters.

Each ACU has 16 such counters, and each counter has four Thresholds. When a Counter's value reaches the limit set for one of its Thresholds, two things can happen:

- an Event is generated (which, like all event messages, can cause other things to happen)
- a Relay is turned on, and will only turn off when the Counter value drops below the Threshold's lower limit.

Typical uses of a Counter might be to limit the number of cars in a car park, or to turn off lighting when a room is empty.

2.18 Multi Card Access Rules

EXgarde PRO™ features a multi card feature that requires more than one user to present their card before access is granted. The system can be configured so that up to 9 individuals are required to present their card before the door lock is release. In addition users can be given the authority to permanently unlock a door with a “double tap”

2.19 Card Expiry

EXgarde PRO™ allows the setting of card expiry parameters so that the card is only valid between certain times with auto expiry.

2.20 Key Enrolment Readers

Any of the readers defined in the system can be assigned as an enrolment reader. This allows automatic population of the card number field on presentation of the card to the specified enrolment reader. This removes the need to purchase a separate desktop wedge reader.

2.21 Mantraps (Air Lock feature)

The Man Trap feature prevents one door from being opened if another door is open. Man Trap is sometimes referred to as an Air Lock.
This feature can only be used on doors controlled by the same controller (the rule is applied whether a key or the egress button is used)

2.22 Access Modes

Each Access Area has one or more controlled Doors which allow authorized Keyholders to pass between one Access Area and another. EXgarde has one pre-defined Access Area called Public, which is used to represent the area outside your site, the external world.
Entry into an Access Area is granted to whole Access Groups, rather than individual Keyholders. Each Tenant has its own set of Keyholders and one or more Access Groups. You can implement powerful Group-oriented security policies by allowing particular Groups of Keyholders into particular Areas at particular times. Key Holders are allowed into an Access Area if they are members of any which is allowed in at the time.

Access Areas can be nested, which implies that inner Areas are more secure than outer ones. If members of an Access Group are allowed into an inner (more secure) Area, they are automatically allowed into the outer (less secure) Areas which contain it.
Each Access Area is owned by an owning Tenant, who may control whether the Area is private, or is shared by other Tenants on the Site.
Access Area Schedules control the access modes for all doors leading onto the access area selected.
The access schedule is displayed on a weekly schedule which is manually edited if the default is not required.
These modes of operation can be over-ridden by manual operator intervention
Access Modes:
Unlocked
Doors will be unlocked for the selected time
Key Only (default)
Access to this area will be allowed if a valid Key is presented.
Key or Keypad
Access to this area will be allowed if a valid Key is presented, or if a valid code is entered at a keypad
Key + PIN
Access to this area will be allowed if a valid Key is presented followed by the correct PIN
Key + PIN or Keypad
Access to this area will be allowed if a valid Key is presented followed by the correct PIN, or if a valid code is entered at a keypad

2.23 Integration - IP Cameras

EXgarde PRO™ features integration with IP cameras as standard. This allows the viewing of live video feed from the chosen camera and in addition (where the camera type allows), PTZ control.

Cameras are defined through the EXgarde PRO™ user interface. Current pre-defined camera types are shown below, however any camera type can be defined.

- Panasonic
- Axis

2.24 Integration - CCTV Equipment

EXgarde PRO™ allows seamless integration with Digital Video Recorders (DVRs) from a number of industry-leading CCTV manufacturers. Unless otherwise specified, the specific integration module allows the user to perform the following functions:

- Displaying a matrix of live feed from cameras connected to a selected DVR without the need to run additional applications
- Viewing of live video feed from an individual camera connected to a selected DVR
- Tagging of a recording with event information allowing for easy and rapid searching of video footage
- Ability to search hard disk contents of a selected DVR for written event, door or cardholder information
- Triggering a preset camera setting on an access event (such as door forced)

Each DVR type is offered as an additional separate licence option.

Integration with TDSi VUgarde™ is provided as standard allowing tagged events for retrospective playback and video verification of live events

2.25 Integration - Biometric Readers

EXgarde PRO™ allows seamless integration with industry leading biometric readers, including fingerprint and iris recognition types. Dependant on the type of reader being used, biometric integration modules include the following functionality from within the EXgarde PRO™ user interface

- Capturing of templates from the user using an enrolment reader as defined by the user
- Verification of the template to ensure good template quality
- Setting of a security level for the user
- Distribution of the template to connected biometric readers
- Deletion of templates from the system and readers
- In the case of readers which include a smart card, encoding of the template onto the smart card
- Deletion of the template from the smart card

2.26 Integration – Intruder Systems

EXgarde PRO™ is used to provide an easy means of managing the hardware integration to an intruder alarm system. A simple to understand and use screen is presented allowing parameters of the intruder alarm system integration to be configured. This brings the benefits of improved security, reduced installation cost and a reduction in the number of false alarms.

Unless explicitly stated, the integration is achieved through the use of inputs and relays on a door controller connected to inputs and relay outputs on the intruder system, with action being taken based on inputs and events of the access control system. Note that the intruder integration is not achieved through a software connection between the access management and intruder systems except for the case(s) listed below.

Integration to the Texecom Premier range of panels is achieved seamlessly via IP and does not require inputs or outputs to function. The Texecom panel is required to be made available over an IP network.

Intruder integration is offered as an additional separate licence option.

2.27 Integration – Active Directory

Integration between the physical and logical access world can enhance your security and reduce time in managing both systems. By providing a seamless link between EXgarde™ and the Active Directory, the access control system can be automatically updated when changes are made within Microsoft Active Directory.

Furthermore, your logical system can be further secured by restricting login if people aren't in the building. This has the added benefit of preventing tailgating thereby increasing security further and ensuring you have a true record of staff in the building. The AD module runs as a service on the system, which, coupled with a configuration tool allows you to select which domain and tree within AD you want to use. This allows those people that work remotely via secure links to not be affected by the physical access system.

- Fully configurable fields - Provides flexibility for how you use the AD store.
- Import users from AD - Saves duplicating work to import users into EXgarde.

- Select Group, Container or OU to import from - Allows freedom to import what you want and match your structure.
- Define default access group and initial location - Saves having to define this within EXgarde™ for the majority of users.
- Monitor OU or Container - Allows EXgarde™ to be kept in sync with changes to users in an OU or Container11.
- Lock users AD account when they leave the building - Increases PC logon security and prevents tailgating2.
- Suspend Access card on account lock - Manage the access credentials from the AD store.
- Add or Delete keyholders in EXgarde™ automatically - Manage the keyholders based upon AD additions and deletions.

2.28 Integration – Fire Systems

EXgarde PRO™ is provided as standard with tools to allow integration to a fire system. This provides the following functionality

- Manual or automatic printing of a fire report to a specified connected printer showing location of all key holders within the system. Note automatic printing is triggered upon a pre-defined input on a door controller becoming active
- Automatically release fire doors upon a pre-defined input on a door controller becoming active
- Operator relocking of fire doors following a fire alarm being cleared

2.29 Software Integration – Overview

EXgarde PRO™ Integration Pack is supplied with a full suite of software tools to allow integration of the EXgarde PRO application to third-party software packages. These tools are summarised below.

- EXporter™ application which allows event data to be sent out, in real time, to a serial port, file or database. Specific event types can be sent from the EXporter™ application.
- Read only Database – allows third-party applications to access data for processing. This can be utilised by readily available reporting software, for example, Crystal Reports, ODBC, OLEDB, and JDBC.
- Importing tool allowing the importing of Key Holder data that is contained within a text file. Note that Key Holder images cannot be imported.
- EXgarde PRO™ can export Key Holder Data including images. This requires manual initiation by the operator.
- EXfusion™ provides a means of updating the EXgarde PRO™ database should changes occur within a third-party database. This allows the addition, deletion or modification of Key Holder, Key and Access Group information in the EXgarde PRO™ database.
- OPC Server. This allows a third-party software application containing an OPC client access to EXgarde™ data. The server contains a Data Access and Alarm and Event interface. An API is also included.

2.30 Reports – General

EXgarde PRO™ features a wide range of reports that the operator that can generate. Note: reports are generated manually and cannot be scheduled. However, in the case of the fire report this can be printed automatically upon the pre-defined input of a door controller becoming active.

Reports can be viewed (on screen), printed to a designated attached windows printer or saved in various file formats. Supported file types are as follows:

- Text file (*.txt)
- Comma Separated Values (*.csv)
- HTML (.htm)
- Microsoft Excel (*.xls)
- Portable Document Format (*.pdf)
- Rich Text Format (*.rtf)
- Microsoft Word (*.doc)

Configuration allows the user to define, sort and filter parameters that are applied to the data prior to report generation; providing a reporting tool that outputs only the data that is of interest. The following items are included in the sort and filter tool.

- Keyholder
- Reader
- Entering Area
- Long Name
- Comment
- Report on activity of today
- Report on activity in the last seven days
- Report on activity within a user-definable time period

2.31 Reports – Attendance Report

EXgarde PRO™ can be used to generate an attendance report summarising when a particular key holder entered and exited the area as defined by the operator. Additionally a calculation is performed showing the accumulated time that the key holder spent in that area.

2.32 Reports – FILO (First In Last Out)

EXgarde PRO™ can be used to generate a report that shows the first and last activity that day of each user, group of users or all users on the system. This feature is global and the user activity can be in any area.

2.33 Reports – Event Report

EXgarde PRO™ can be used to generate an event report summarising the occurrences of any event within the system.

2.34 Reports - Instant Reports

EXgarde PRO™ features an instant report facility allowing reports to be generated on almost all areas of the access management software.

2.35 Elevator Control

EXgarde PRO™ allows control of an elevator car by only enabling the floor selection buttons that the user has access to. Used in conjunction with an EXpert™ controller fitted with a 32 output relay card, it is possible to control up to 36 floors. Note: floors can also be grouped together allowing a greater number of controlled floors if required.

Elevator control is available as an additional licence option for EXgarde PRO.

2.36 SDK

The EXgarde PRO™ SDK enables you to interrogate and control certain aspects of the EXgarde PRO Access Control System. The purpose of the SDK is to make it easier for developers to build applications that integrate with the Access Control System. The EXgarde SDK is designed to enable you to interface to EXgarde PRO to obtain certain parameters and control particular aspects of the Access Control System. Some of the commands utilise Fusion to run and are defined within this SDK to provide a common interface. These commands are identified and will require Fusion to be running for them to operate.

2.37 Visitor Management System (EXvisitors™)

EXvisitor™ Visitor Management Module for EXgarde PRO™ provides a means of pre booking visitor appointments and managing visitors while on-site through a simplified, separate, easy to use interface. Visitors can be assigned a host for the duration of the visit for enhanced security. Since EXvisitor™ shares the same database as EXgarde PRO™ the host can be an existing key holder within the system.

EXvisitor™ offers some added security benefits by automatically “checking out” a visitor should they enter a pre-defined area, so should the card be passed to someone else, it will be invalid. In addition all visitor cards can be made to expire at a certain time of day.

EXvisitor™ features reporting, sort and filter functions allowing the easy management of data.

EXvisitor™ is available as an additional licence option for EXgarde PRO™.

2.38 Guard Tour (EXtour™)

EXtour™ Module for EXgarde PRO™ provides a means of utilising readers that are connected to the TDSi door controllers to manage a security tour.

A tour can be defined to include any number of readers. During the tour the guard is required to present their key to the readers in the correct order and within pre-defined time restraints.

Should the guard not present their card within the allotted time, then an alarm is raised to draw the operator’s attention to a potential problem.

EXtour™ includes full reporting features providing an audit trail for the operator.

EXtour™ is available as an additional licence option for EXgarde PRO™.

2.39 Notification Tool (EXpost Office™)

EXpost Office™ notification module for EXgarde PRO™ allows user selected events and alarms to be sent to e-mail (SMTP) or SMS. This allows the operator to monitor the occurrence of these events and take appropriate action.

EXpost Office™ is available as an additional licence option for EXgarde PRO™.