

Net2 User Manual

Version 2

The logo features the words "PAXTON" and "ACCESS" in a bold, black, sans-serif font. The text is centered within a light green downward-pointing triangle that has a thin black outline. The triangle's point is directed downwards, towards the tagline below.

**PAXTON
ACCESS**

The tagline "Simple & Powerful" is written in a white, bold, sans-serif font and is contained within a solid black horizontal rectangular bar.

Simple & Powerful

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Chapter 1 Introduction

This manual Net2 system overview

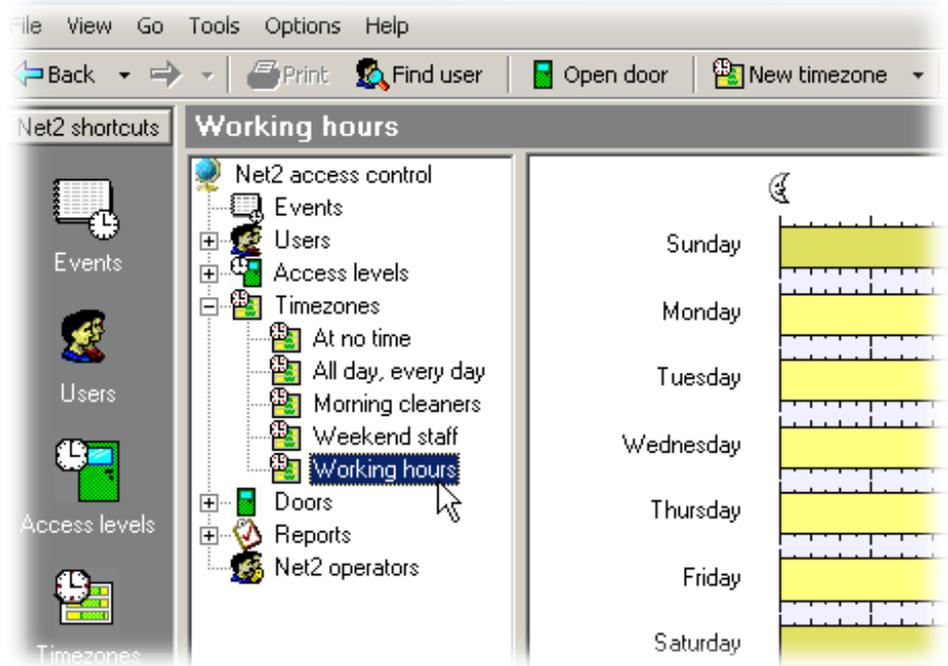
This manual

Manual layout

Section	Description
Net2 system overview	An introduction to the system.
About...	In depth information about all aspects of the Net2 software. This section is split up into the different sections of the program i.e. Doors contains information on everything found in the Doors icon in the treeview.
What if the system is not working?	Basic test and faultfinding information.
Appendix	Information that is referred to throughout the document.
Specifications	Full system specification.

References to areas of the Net2 program

The Net2 software uses a Microsoft Outlook style user interface. Areas of the Net2 program are referred to throughout this document with Microsoft Outlook style 'addresses'. For example *Timezones\Working hours* refers to the part of the program shown in this section. References are always shown in *italics*.



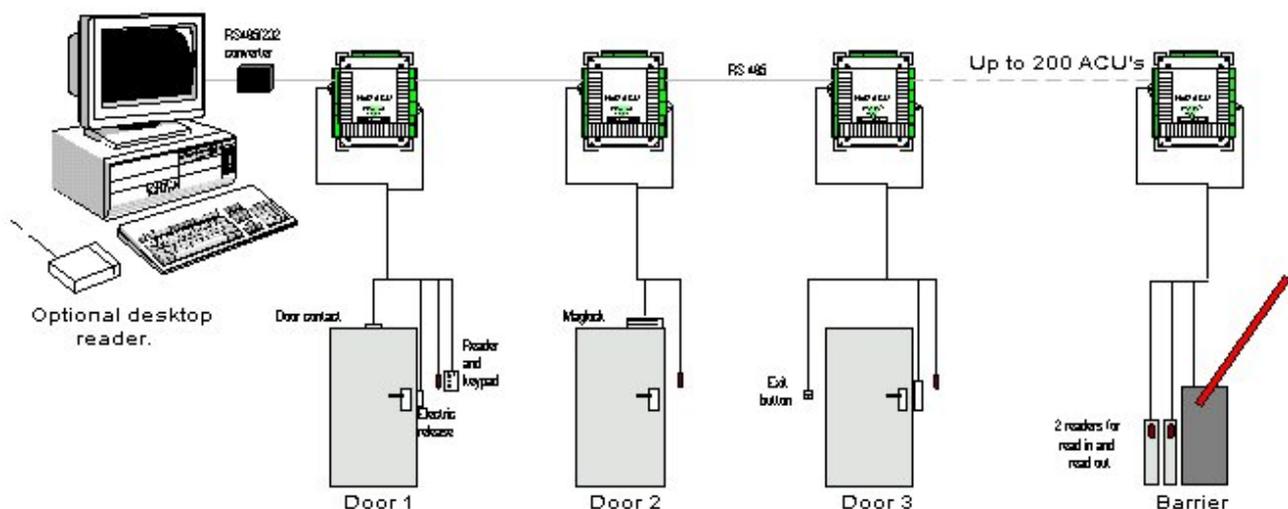
Overview – system

Net2 is a revolutionary system with hardware and software developed simultaneously to meet the requirements of a modern day access control system. The hardware uses the latest in microchip technology allowing unprecedented levels of speed, resilience and cost. The software is based on the latest Windows interface and is developed to enable powerful functionality whilst maintaining ease of use.

An access control system is an investment. The Net2 system ensures the future proofing of that investment in several ways:

- Latest microchip technology offering solid, capable hardware platform
- Use of FLASH memory allowing easy upgrades
- Software can be extended in functionality with 'Modules'
- System can be extended with no redundancy of equipment

The system is capable of controlling up to 200 doors and 10,000 users. For systems larger than this please contact the Paxton Access support department.



Overview – Net2 hardware

Ease of wiring

Clearly labelled terminals on every access control unit remove the need for continual referencing to wiring diagrams. Clear colour coding of reader cables leads to fewer mistakes.

Diagnostic LEDs

An array of LEDs on the control unit indicate the status of key system features. This will aid commissioning and quick diagnosis of any problems should they occur.

FLASH Memory

FLASH memory in the access control units allows the downloading of new firmware to the control units from the PC. This will mean that as new features are added to Net2, systems in the field can be upgraded to allow the use of the latest software features without any changes to the hardware.

Open architecture

Relay outputs and digital and analogue inputs allow integration with the hardware of other systems.

Latest technology

State of the art electronic components create a solid hardware platform, which is both high performance and compact.

Scaleable architecture

The system will be scaleable. The smallest system will be expandable to the largest system using the same hardware building blocks and virtually no redundancy of hardware as the system expands.

Communications

Very high speed and resilient communications offer real time alarm reporting and the capability for very large systems.

Distributed intelligence

The Net2 single door control units provide full distributed intelligence down to individual doors. This gives greater system resilience and makes support and problem diagnosis easier. Also, event information can be retained when the system is running offline (2,300 events).

Multi-technology

The same control unit will support magstripe (Clock and data), Wiegand 26bit, keypads and proximity, mixed on a single site if required.

Overview – Net2 software

Open architecture

Microsoft Access database allows easy linking of data to other software systems.

Ease of use

Easy to learn, intuitive user interface working in Microsoft Windows 98, NT4 and 2000 environments.

Ease of commissioning

Auto detection and numbering of access control units. No DIP switches to set or binary numbering to worry about, switch on the software and go!

Modular

The software has the capacity for features to be added as and when they are required. The modular structure enables the user interface to be as powerful as required whilst remaining simple.

Comprehensive range of features

All the basic features required to control access privileges of users with respect to time and create reports on the events happening around the system. Many advanced features have been added in version 2 of the program, a list of these additional features is included in the **Appendix**. Full details of all system features are documented in the **About...** section.

Chapter 2 About...

Net2 software

Doors

Timezones

Access levels

Users

Events

Reports

Net2 operators

Options

Other features

Net2 software

The Net2 software is based on the Microsoft Outlook style user interface. This provides an excellent graphical interface allowing easy access to all system features. Windows users will find this style of interface familiar enabling fast, intuitive learning. Many Windows features such as drag and drop and right mouse button click have been included in Net2.

Net2 software - View options



The screen shot shows the three windows of the Net2 software. In addition to these windows there are drop down menus and a task bar.

Main window

This is where events, user details, settings etc are displayed. The size and shape of this window can be changed to suit.

Treeview window

This is the Explorer style window that is used to navigate around the program. This is optional and can be turned on and off in the View drop down menu.

Shortcut window

This is the bar of shortcuts on the left of the screen. There are shortcuts to the different areas of the program allowing navigation around the program without the use of the treeview. This is optional and can be turned on and off in the View drop down menu.

Toolbar

The toolbar, at the top of the display, has buttons accessing some features directly (Print, Find user and Open door – for details see *About... \Other features*). Also included are Internet Explorer style navigation arrows, these allow the operator to flip back through areas of the program just visited.

Drop down menus

The drop down menus feature shortcuts to areas of the program as well as system settings and configuration options.

Net2 software – The structure

The Net2 software consists of three main components, the program, the database and the communications server. These are all installed onto a single PC.

The database is where all system information is stored. The program is a front end user interface designed to make viewing and editing the database information easy.

The program

This is the actual Net2 program that an operator uses to change and view system details. This is installed from CD but does not require the CD to run. The default location for the program is C:\Program files\Access Control\Net2\Net2.exe.

The database

The main database is called Net2System.mdb. This database stores all of the information that is specific to an individual system such as user details, door details, configuration, timezones etc as well as event information. It is created the first time that the Net2 program is run and the default location is C:\Net2 access control. If the Net2System database is lost, corrupted or deleted then the whole system will have to be reconfigured unless a backup copy can be reinstated (for information on backup refer to *About... \Options \Backup*).

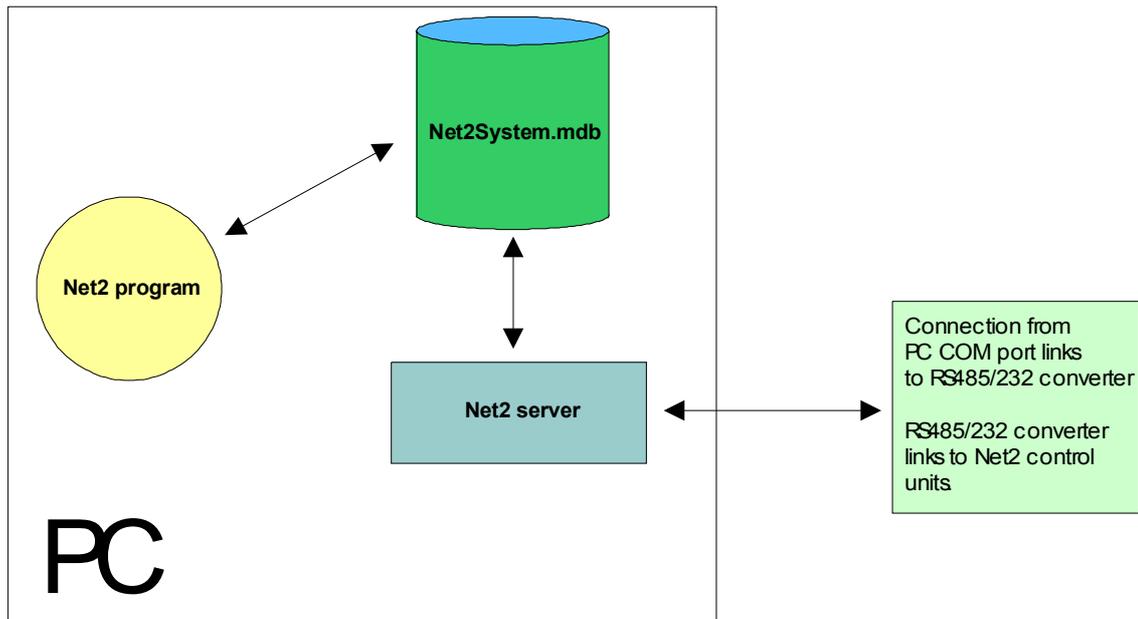
The Net2 server

The Net2 server is the program that deals with the communication between the database and the Net2 hardware (control units). The server is continuously checking the database for changes and asking the control units if they have anything to report.

The server is installed with the Net2 software but is run independently of the program. The default setting is that the server is always running in the background. A Net2 icon can be seen in the bottom right corner of the Windows task bar when the server is running.

The default location for the server is C:\Program files\Access Control\Net2\Net2Svr.exe.

System communication



The diagram shows the basic structure of the Net2 software.

Example 1:

1. An operator changes a user's validity using the Net2 program.
2. When the operator presses the Apply button these changes are stored in the database.
3. The Net2 server will detect that a change has been made to the database and make sure that the revised information is downloaded to the relevant control units.
4. Once the control units have been updated, the new validity is active.

Example 2:

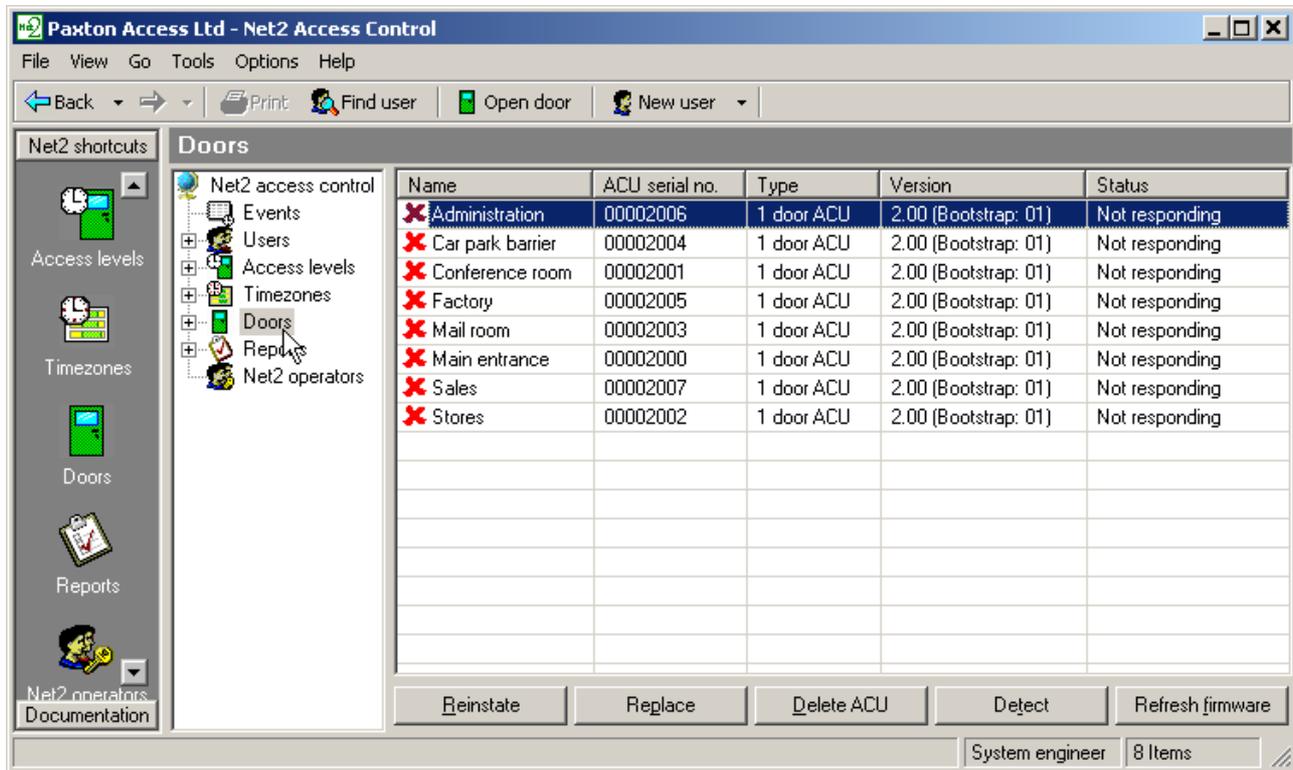
1. A user presents their token and passes through an access point on the system.
2. The next time that the server asks the control unit if it has any information to download (each control unit is polled around 10 times per second) the control unit will download the event information to the server.
3. The server will store the event information in the database.
4. An operator can view the event information using the program.

Note: Even though there are several steps in each of the examples, actions and events will appear instantaneous due to the speed of each process.

Doors – General information

What are doors?

The Net2 system is designed to control access through doors. **Doors** in the treeview window refers to the doors controlled by the system. Each control unit is designed to control a single door.



Doors

General information about the control units at each door is shown including name of the door, serial number of the control unit, the current version of firmware and the status of the control unit. If the status is OK then the control unit is communicating with the software correctly.

Reinststate

All system settings and user access rights etc. are stored in the database on the hard drive of the PC controlling the Net2 system. In addition to this, information relevant to each individual door is stored at the relevant control unit. This *Distributed intelligence* offers greatly increased system resilience and speed of decision making.

The Net2 software automatically updates the Net2 database AND the information in the Net2 control units when a change is made. If there has been a problem with communications, and the information in the control units is not correct, then the database information can be re-sent by **Reinstating** the control units.

The information on the database is always taken as being correct. If incorrect decisions are being made at the door then check the settings on the database (i.e. the information displayed in the Net2 software).

Replace

If a control unit fails and needs to be replaced, the Replace wizard is used. The new control unit must be wired into the system and detected (using the **Detect** button). Once detected the control unit will appear in the main display window. The Replace wizard can now be run and will ask you to select the new control unit and the one to be replaced. The software will automatically download the relevant system settings and user details etc.

Delete ACU

This is used if a control unit needs to be *permanently* deleted from the database.

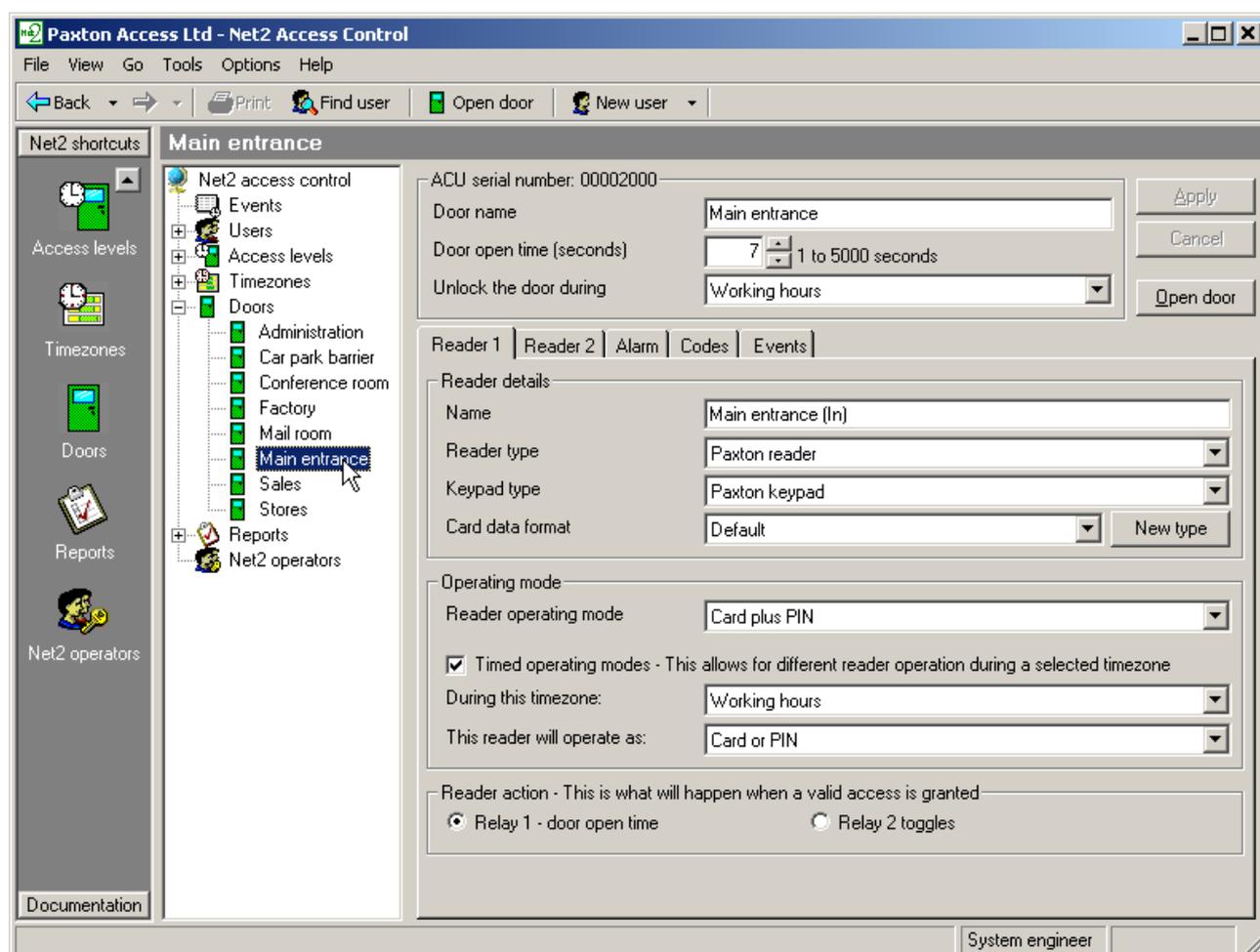
Detect

This will search the network for Net2 control units. Those found are displayed in the main window.

Refresh firmware

This function is used to upgrade the firmware on the control units. The firmware is the program that controls the operation of the control units. Because Net2 uses FLASH memory, the firmware can be upgraded from the PC via the network. As more features are developed for Net2, upgrade software will be available (including upgraded firmware).

Doors\[Door name]



The settings for each control unit are configured in this screen. The ACU serial number is shown in the top left corner of the main display. The lower section of the main display has tabs that allow access to the different settings (Reader1, Reader2, Alarm, Codes and Events). Sections are accessed by clicking on the relevant tab.

Door name

When the system is first powered up, the control unit name will be the same as the serial number. A descriptive name should be given to a control unit. This name will appear in the list of doors.

Door open time

The door open time is the amount of time that the output relay is switched for (the amount of time that the locking mechanism is released). The default setting is 7 seconds. This can be modified within the range 1 to 5000 seconds.

Unlock the door during

This feature allows the user to select a timezone in which the locking mechanism is released. If the working hours timezone is selected, the door will be open during working hours. An example of where this may be useful is where a receptionist is present to greet visitors during office hours. The main door can be left open so that anybody can walk in. Out of working hours the door is automatically locked and a valid user card is required to gain access.

A door can be held open during any timezone. For more information on timezones refer to *About... \Timezones*.

Apply

When any changes are made to the door settings the Apply button must be pressed to commit the changes to the database.

Open door

The open door feature will release the locking mechanism for the door open time.

Doors\[Door name]\Reader 1

The Reader 1 tab shows the settings corresponding to Reader 1 and Keypad 1 connected to that control unit.

Name

The default name for reader 1 is [Door name] (IN). The default name for reader 2 is [Door name] (OUT).

The reader names set here will appear in reports and be used to set access levels.

Reader type

This should be set to the relevant type of reader.

Setting	Description
None	If no reader is connected.
Paxton reader	If a CARDLOCK or PROXIMITY reader is connected.
Clock and data	If a non – Paxton clock and data reader is connected
Wiegand	If a Wiegand reader is connected.

Keypad

This should be set to the relevant type of keypad.

Setting	Description
None	If no reader is connected.
Paxton keypad	If a TOUCHLOCK keypad is connected.

Card data format

Every card enrolled on a Net2 system must have a unique number. The card data format option allows Net2 to use cards and tokens with a variety of encoding formats.

The default setting is for the Net2 encoded cards and tokens (random 8 digit number).

Setting	Description
Default	This is for Net2 encoded cards and tokens (random 8 digit number).
Paxton cards	This is for CARDLOCK and PROXIMITY cards and tokens (encrypted number).
Bank cards	This allows Net2 to use bank cards.

Refer to *About... \Options \Card data formats* for more detailed information.

Reader operating mode

The correct operating mode should be selected from the drop down menu.

Setting	Description
Inactive	There is no reader or keypad connected (or they are inactive for some other reason).
Card only	Access is granted by swiping a valid user card.
Card plus PIN	Access is granted by swiping a valid user card AND entering the relevant PIN.
Card plus code	Access is granted by swiping a valid user card AND entering a valid code.
Desktop reader	A desktop reader is connected. This reader is to be used to add users to the system.
PIN only	Access is granted by entering a valid PIN.
Code only	Access is granted by entering a valid code.
Card or PIN	Access is granted by swiping a valid card OR entering a valid PIN.
Card or code	Access is granted by swiping a valid card OR entering a valid code.
Card, PIN or code	Access is granted by swiping a valid card OR entering a valid PIN OR entering a valid code.

For information on the difference between PIN and code, refer to *Appendix \Difference between code and PIN*.

The list of operating modes displayed in the drop down menu is dependent on the reader type and keypad type settings. For example, if a keypad is configured without a reader, only Inactive, Code only and PIN only will be displayed in the drop down menu.

Timed operating modes

This feature allows a different operating mode within a timezone. For example, card plus PIN may be required outside working hours and card only within working hours.

To configure this, select the required timezone from the drop down menu. Select the required operating mode from the other drop down menu.

Reader action

This is the action that will happen when access is granted.

Setting	Description
Relay 1 - door open time	Access granted will open relay 1 for door open time. This can be used for temporarily releasing electric locking mechanisms.
Relay 2 - toggles	Access granted will toggle relay 2. For example, a valid card will open relay 2. The relay will remain open until another valid card is presented. This can be used for switching an alarm system on and off, opening shutter doors etc.

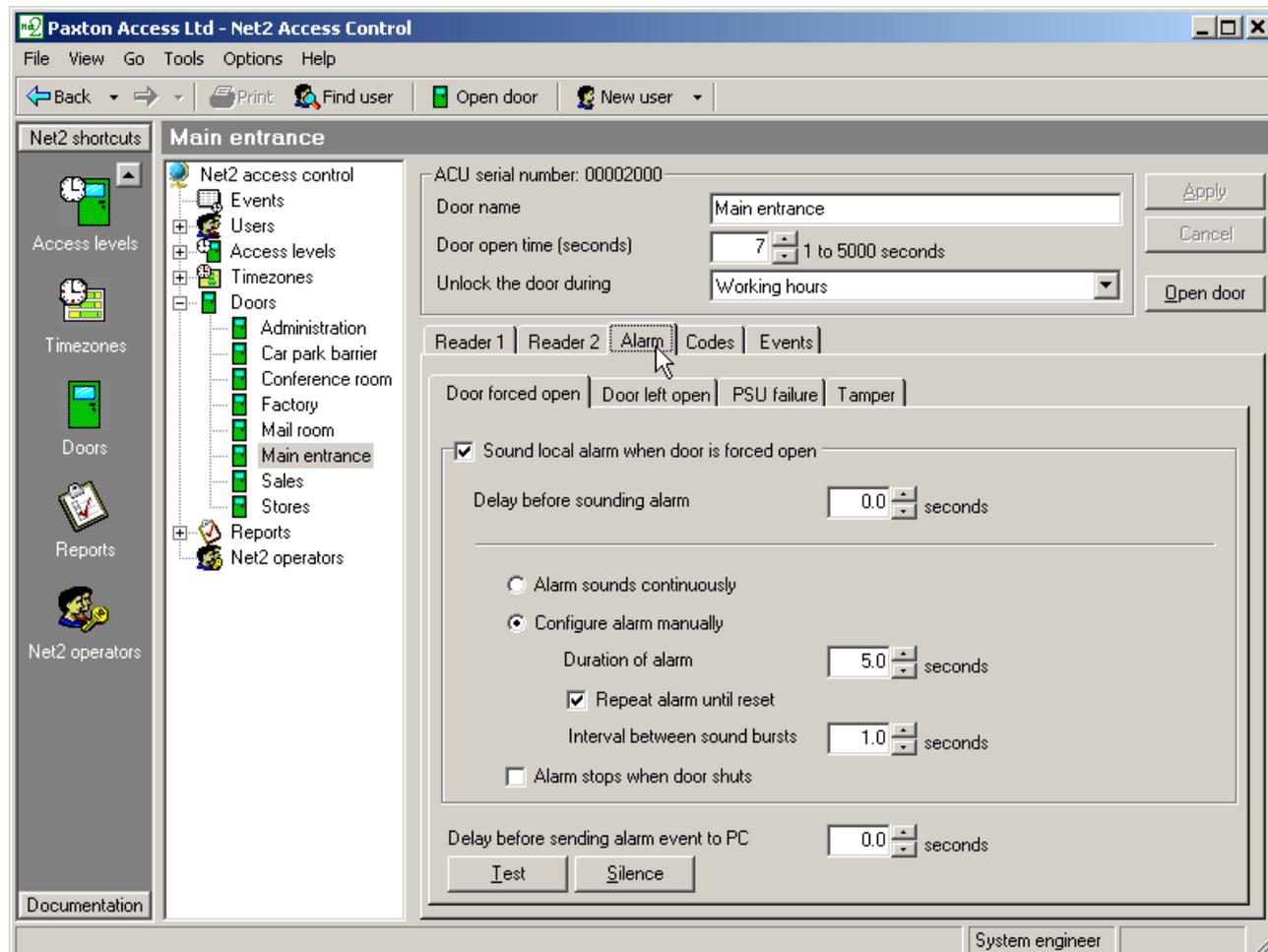
Doors\[Door name]\Reader 2

The Reader 2 tab shows the settings corresponding to Reader 2 and Keypad 2 connected to that control unit.

The default name for reader 2 is [Door name] (OUT). This can be changed.

All settings are set as shown for reader 1. Readers 1 and 2 are configured separately and can have completely different settings.

Doors\[Door name]\Alarm



There are 4 types of alarm that can be configured for each ACU.

Type of alarm	Description	Requires...
Door forced open	The door is opened without the permission of the access control system.	Door contact
Door left open	The door is opened with the permission of the access control system but is not closed within the specified time.	Door contact
PSU failure	The mains supply to the control unit PSU fails. If battery backup is fitted then the system will continue to operate.	Mains fail output on power supply
Tamper	The control unit enclosure has been opened.	Tamper switch on control unit enclosure

Each type of alarm has its own tab and is configured in the same way. The settings for each type of alarm can be different.

Local alarm

On every control unit there is an alarm output. This can be connected to a bell, sounder, light etc. The local output can be turned on or off for each type of alarm.

If the local alarm is activated then a delay can be imposed before the alarm is activated. It can also be configured in a particular way to distinguish between different alarm events. The alarm can be set to sound continuously or can be configured manually.

Testing the local alarm

The local alarm can be tested by activating it and silencing it from the PC.

Alarm reporting at the PC

All alarm events are reported at the PC. A delay can be imposed before an alarm event is sent.

Doors\[Door name]\Codes

Unlock the door during Working hours Open door

Reader 1 | Reader 2 | Alarm | **Codes** | Events

Keypad codes can be from 4 to 8 digits (first digit cannot be 0).

Add >
< Remove

Codes allocated: 0 of 50

Note: The Codes tab only appears if a keypad is configured on the control unit.

Codes can be simply added and deleted. Codes added in this screen will only be valid for the individual door.

Up to 50 codes can be valid at any one time. Codes can be between 4 and 8 digits long.

Doors\[Door name]\Events

Unlock the door during Working hours Open door

Reader 1 | Reader 2 | Alarm | Codes | **Events**

Date/time	User name	Where	Event description	Event ID
05/06/2000 10:24:28	Ferguson, Kerensa	Main entrance (In)	Access permitted - card only	
05/06/2000 10:24:18	Ferguson, Kerensa	Main entrance (In)	Access permitted - card only	
05/06/2000 10:22:36	Smith, Barry	Main entrance (In)	Access permitted - card only	
05/06/2000 10:17:23	Cahalane, Sue	Main entrance (In)	Access permitted - card only	
05/06/2000 10:15:47	Johnson, Mark	Main entrance (In)	Access permitted - card only	
05/06/2000 10:15:41	Smith, Barry	Main entrance (In)	Access permitted - card only	
05/06/2000 10:14:46	Bannister, Paul	Main entrance (In)	Access permitted - card only	
05/06/2000 10:14:12	Cahalane, Sue	Main entrance (In)	Access permitted - card only	
05/06/2000 10:11:20	Bannister, Paul	Main entrance (In)	Access permitted - card only	
05/06/2000 10:10:06	Kanjilal, Mo	Main entrance (In)	Access permitted - card only	
05/06/2000 10:07:43	Jones, Jenny	Main entrance (In)	Access permitted - card only	
05/06/2000 10:05:59	Johnson, Mark	Main entrance (In)	Access permitted - card only	
05/06/2000 10:02:49	Cahalane, Sue	Main entrance (In)	Access permitted - card only	

This screen simply displays the events that have happened at that control unit.

Timezones - General information

What is a timezone?

Term	Description
Timezone	A series of timeslots.
Timeslot	A start and stop time on a particular day of the week.

A timezone is made up of several timeslots. A simple example of a timezone is the default Working hours timezone. This has 5 timeslots:

9am-5.30pm Monday

9am-5.30pm Tuesday

9am-5.30pm Wednesday

9am-5.30pm Thursday

9am-5.30pm Friday

This is a simple example of a timezone. Timezones can have several timeslots per day (total number of timeslots is 2048 maximum). This allows for break times, night shifts and more complicated timezones.

Maximum number of timezones is 64.

What are timezones used for?

The Net2 system has many functions that depend on the time and day of the week. For example, a user can be set to have access at particular times on particular days of the week. Timezones are used to make this as simple as possible, i.e. the user can be made valid within a timezone.

Once a timezone is set up, it can be used for any feature requiring a timezone.

Timezones

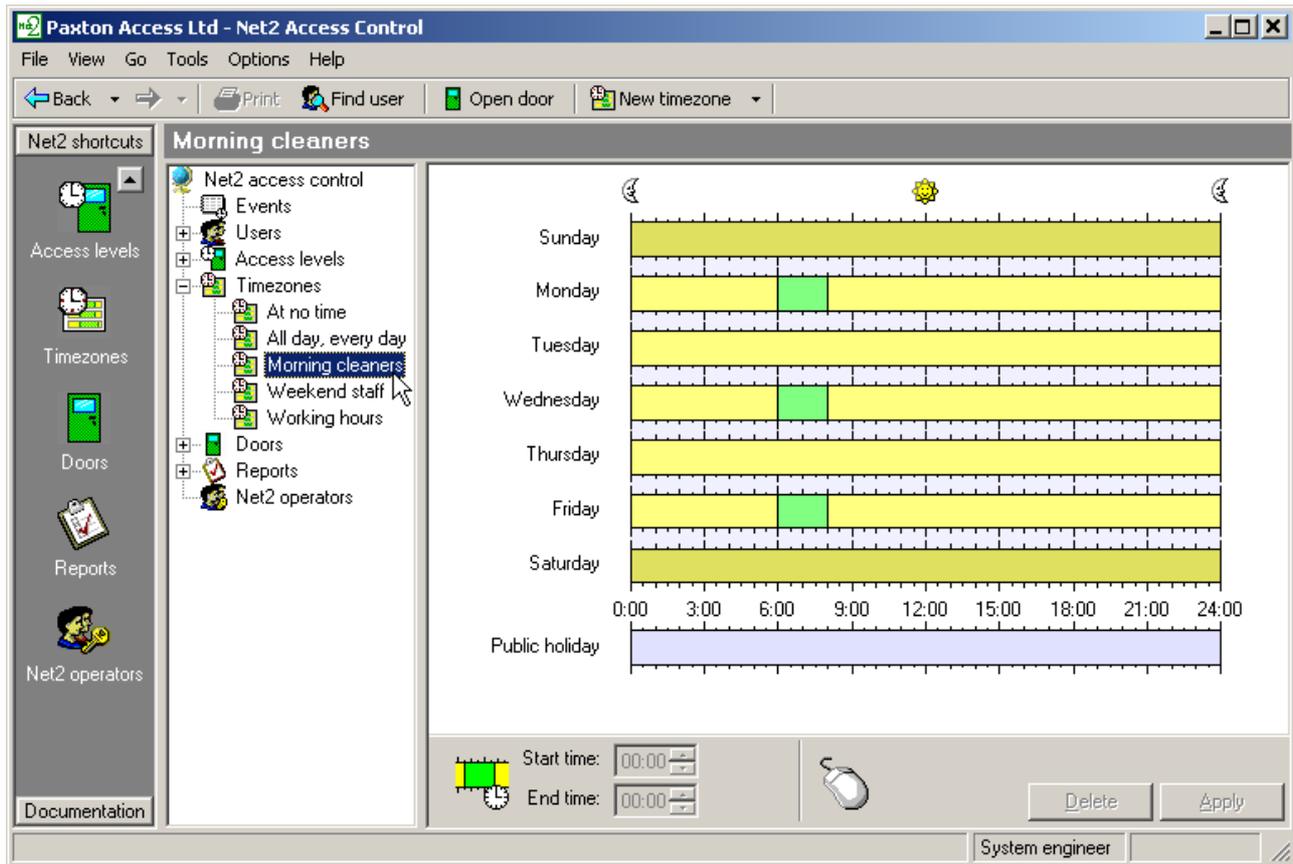
The main window displays the timezones that have been setup on the system.

There are 3 default timezones that cannot be deleted (although the working hours default timezone can be modified).

Timezone	Description
At no time	At no time on any day of the week
All day, every day	24 hours per day, every day of the week
Working hours	9am-5.30pm Monday to Friday

Timezones can be added, deleted or renamed by either clicking on the right mouse button or using the buttons at the bottom right corner of the main display window.

Timezones\[Timezone name]



The main window shows a graphical display of the selected timezone.

Adding timeslots

New timeslots can be added by holding the left mouse button and dragging the pointer.

Deleting timeslots

Timeslots can be deleted clicking the 'Delete' the button in the bottom right hand corner of the main display window.

Dragging and dropping

Timeslots can be moved by dragging and dropping. This is done by holding the left mouse button down and moving the pointer whilst the timeslot is selected. The start and end times of a timeslot can be adjusted to the nearest 15 minutes by dragging the end of the timeslot.

Start time and End time windows

These appear in the bottom left hand corner of the main display window. When a timeslot is selected the start and end times are displayed. The timeslot can be adjusted to the nearest minute using up and down arrows.

Copying and pasting

Clicking on the right mouse button whilst a timeslot is selected will activate cutting, copying and pasting. An entire sequence of timeslots in one day can be copied using the copy day feature.

Public holidays

As well as the 7 days of the week, there is an entry for public holidays. This allows specific timeslots to be set up for days that are nominated as public holidays.

For example, the Cleaners shift timezone could be set up to allow cleaners access to the premises between 9am and 11am on public holidays.

For information on configuring public holidays refer to *About... \Options \Public holidays*.

Apply

Once the timezone details are correct the changes must be applied for them to be committed to the database.

Access levels – General information

What is an access level?

An access level is a level of access permissions, i.e. where in a building a user is allowed. A common requirement of an access control system is to be able to set different access permissions for different groups of users. Sometimes the access permissions will be dependant on the time and day of the week, for example a user may only be allowed into the office during standard working hours.

An access level may be given the name of the group of users that it is for (such as factory workers). An access level is set by selecting an appropriate timezone for each reader. Users given an access level will be able to gain access during the timezone specified for that reader. For example, if we want to limit access through the main entrance to during working hours, we select the working hours timezone next to the main entrance reader.

The maximum number of access levels on a system is 250.

Access levels

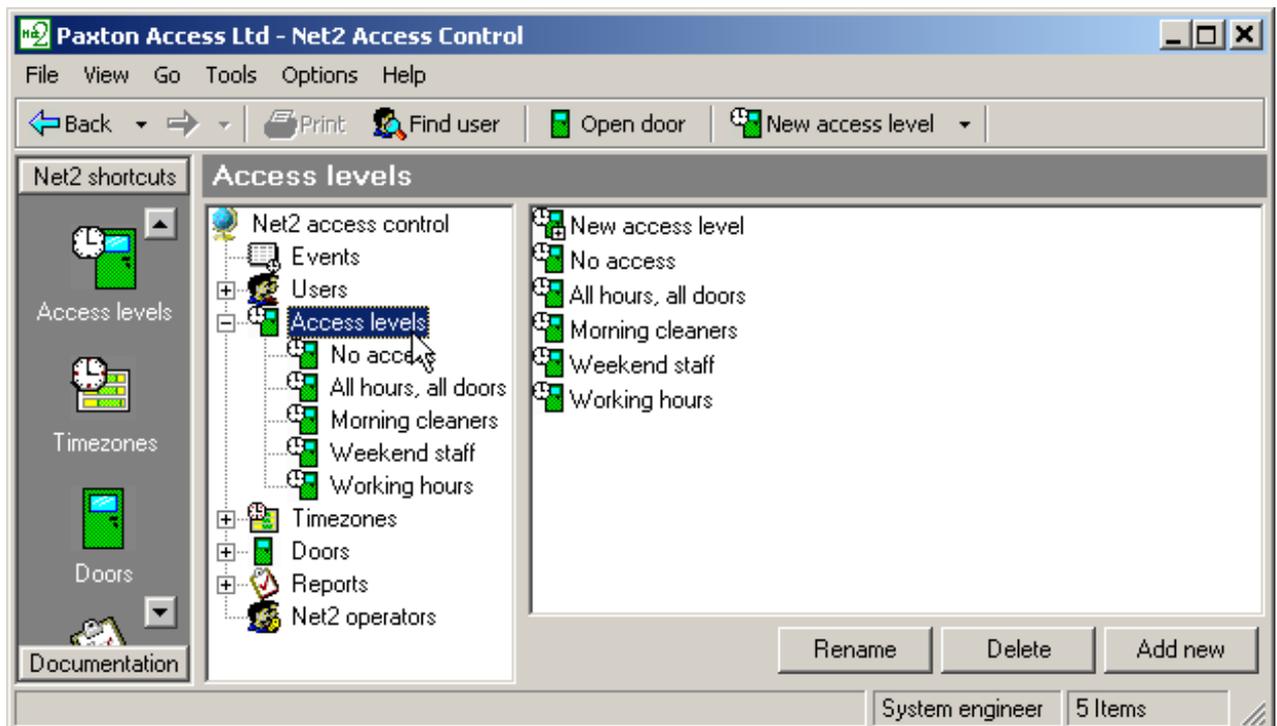
The main window displays the access levels that have been setup on the system.

There are 3 default access levels that cannot be deleted (although the working hours default access level can be modified).

Access level	Description
At no time	Access is not permitted at any time on any doors
All day, every day	Access is permitted on all doors, 24 hours a day, 7 days a week
Working hours	Access is permitted on all doors only during 9am-5.30pm Monday to Friday

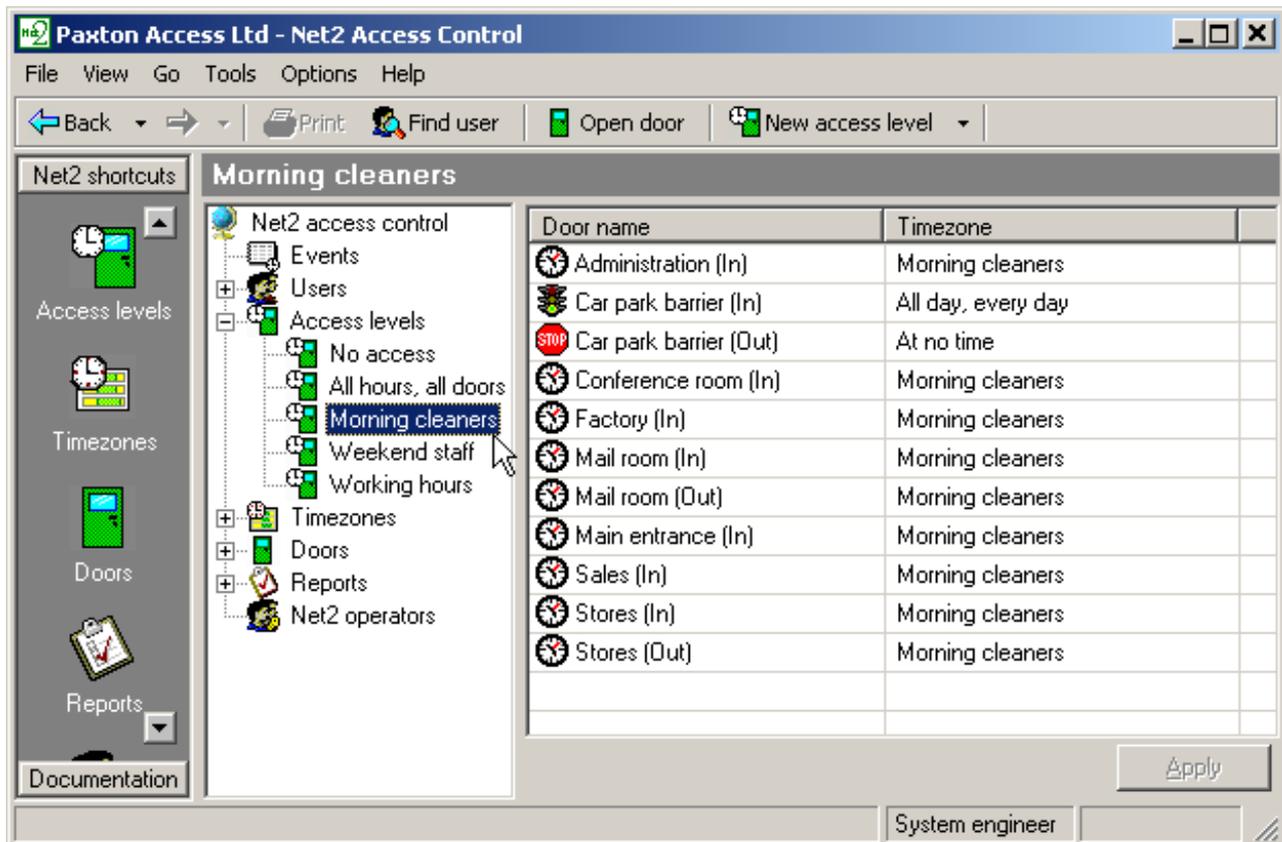
Access levels can be added, deleted or renamed by either clicking on the right mouse button or using the buttons at the bottom right corner of the main display window.

Note: It is not recommended to apply the all day, every day access level to large numbers of users. This would prevent the access rights of these users being changed as a batch when the site requirements change.



Access levels \[Access level name]

The main window displays the settings for the current access level.



Every reader on the system is displayed. Next to the reader name, a timezone can be selected from the drop down menu. When a user is given an access level, they will be permitted through the readers shown, during the timezones shown.

The screen shot in this section shows that morning cleaners are allowed in the car park at all times, out of the car park at no time and through all other doors on the system only during working hours.

Apply

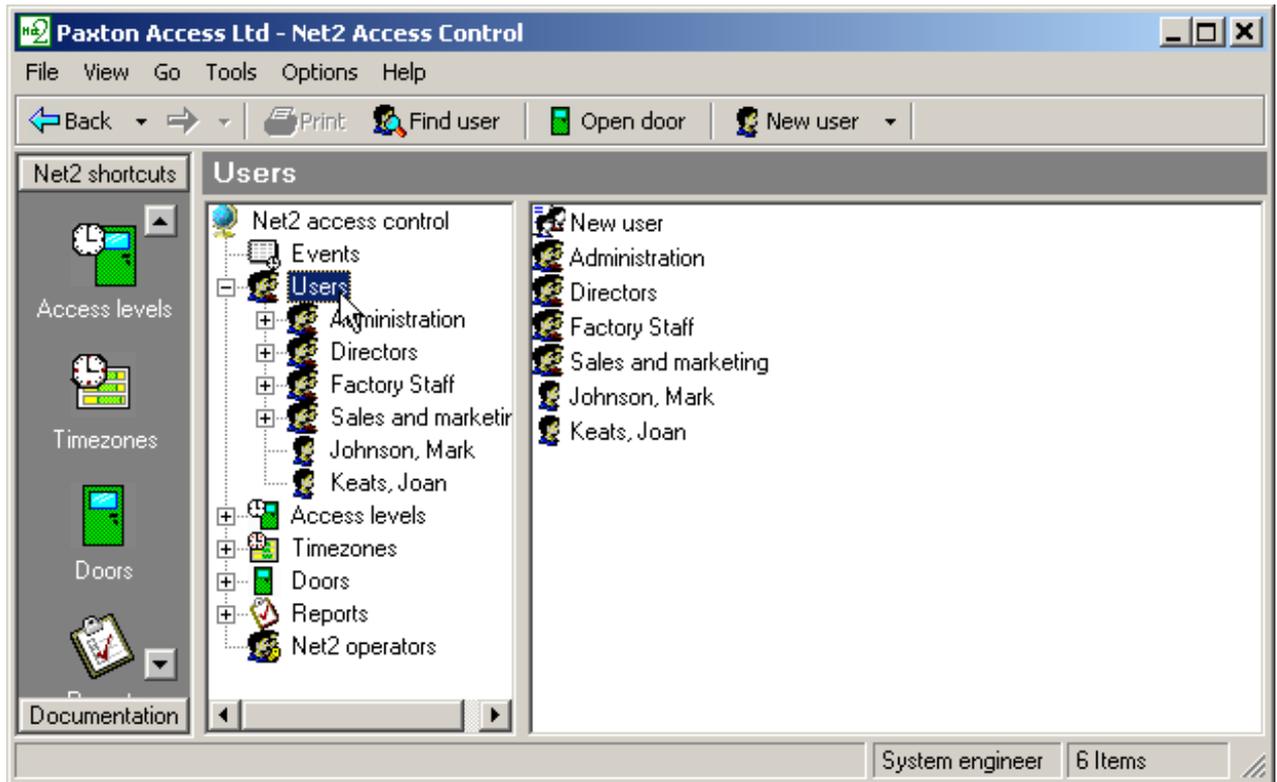
Once the access level details are correct, the changes must be applied for them to be committed to the database.

Users – General information

'Users' refers to the people that use the access control system. Users are identified to the system by a card, token or PIN (or a combination of any of these). Once a user has been identified to the system, a decision can be made on whether they are permitted or denied access.

Every user that has been entered onto the system has a user record. This contains information regarding their access permissions, cards/tokens, PINs and any other details required.

Users



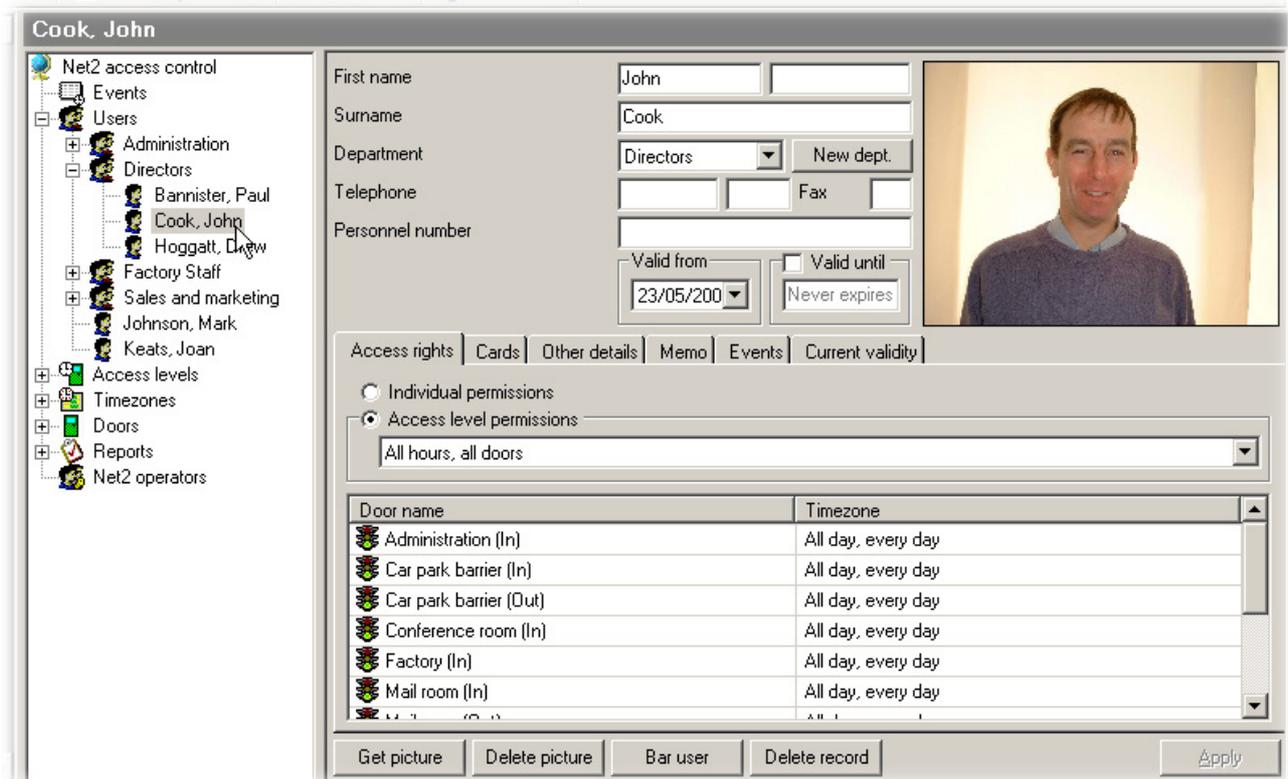
The users on the system are displayed in the main window. If departments have been configured then these will also be displayed.

Departments

Departments allow users to be grouped. This is particularly useful when there are a large number of users on the system. Having users grouped together by department enables quick reporting and viewing of users.

For more information about setting up departments, refer to *About... \Options \Departments*.

Users\[User name]



General information

Name, telephone number, department and personnel number can be recorded if required.

Valid from and **Valid until** indicate the dates between which the user is valid. Visitors for example can be configured so that their card automatically expires after one day. Contractors or temporary staff can be configured to be valid between certain dates.

The default setting for the **Valid from** date, is the date that the user is added to the system. This can be changed using the drop down calendar. The **Valid until** date is inactive as default. If required it can be marked as active and a date can be selected from the drop down calendar.

The user can be barred from all doors by pressing the **Bar user** button.

A users complete record can be deleted by pressing the **Delete record** button. This will completely remove the user record from the database. **WARNING** - This action cannot be undone.

Pictures

A picture of the user can be imported into the user record. A picture can be imported by pressing the **Get picture** button. Bmp, jpg, gif, wmf and emf formats are supported.

Pictures can be deleted by pressing the **Delete picture** button.

When a picture is imported into a user record, a copy is made and stored in C:\Net2 access control\Pictures.

Access rights

The user can be assigned an access level from the drop down list, refer to *About...\Access levels*.

Alternatively **Individual permissions** can be selected. This allows the exact access of each user to be configured completely independently. This is often used in sites with few users.

Users\[User name]\Cards

The screenshot shows the 'Cards' tab of the user management interface. At the top, there are two date pickers: 'Valid from' set to '23/05/200' and 'Valid until' set to 'Never expires'. Below these are tabs for 'Access rights', 'Cards', 'Other details', 'Memo', 'Events', and 'Current validity'. The 'Cards' tab is active, showing a list of assigned cards. The first card is displayed with a key icon and the number '10000001'. To the right of the card list are buttons for 'New card', 'Delete', and 'Lost card'. At the bottom of the window are buttons for 'Get picture', 'Delete picture', 'Bar user', 'Delete record', and 'Apply'. The user role 'System engineer' is visible at the bottom right.

The main display shows the cards that are assigned to the user. As many cards as required can be assigned to a user (the overall system limit is 10,000 cards). Cards can be added by either entering the card number manually OR by presenting or swiping the card at the desktop reader. Cards can be deleted completely by pressing the **Delete card** button.

Lost cards

If a card is marked as lost it will be automatically invalid on all doors at all times. If it is presented at any reader on the system an alarm event will be generated.

Users\[User name]\Other details and Memo

The screenshot shows the 'Other details' tab of the user management interface. At the top, there are two date pickers: 'Valid from' set to '23/05/200' and 'Valid until' set to 'Never expires'. Below these are tabs for 'Access rights', 'Cards', 'Other details', 'Memo', 'Events', and 'Current validity'. The 'Other details' tab is active, showing a list of fields for user information: 'Address 1', 'Address 2', 'Town', 'County', 'Post code', 'Home telephone', 'Home Fax', 'Mobile', and 'Email'. Each field has an empty text input box to its right. At the bottom of the window are buttons for 'Get picture', 'Delete picture', 'Bar user', 'Delete record', and 'Apply'. The user role 'System engineer' is visible at the bottom right.

Details can be entered for every user on the system. Default user detail fields are: Address 1, Address 2, Town, County, Post code, Home telephone, Home fax, Mobile, E-mail, Position, Start date, Car registration and Memo.

The 16 user detail fields can be modified as required. For more information refer to *About... \Options \Field names*.

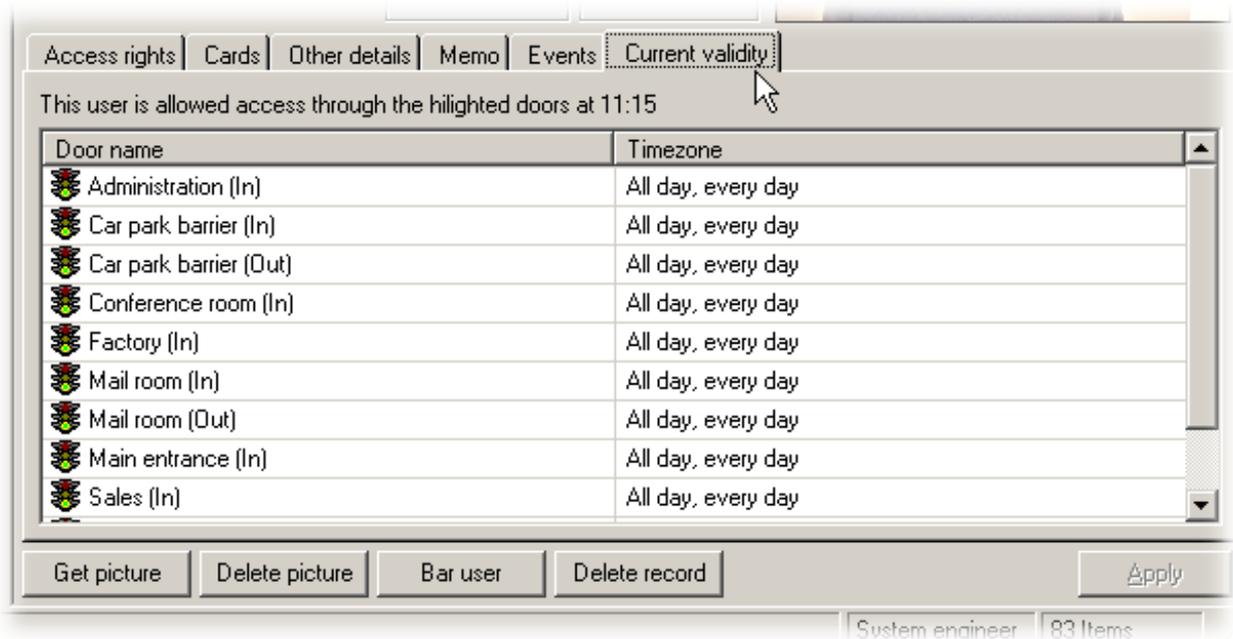
Note: Field names can be edited by double clicking on them (unless disabled in Options).

Users \[User name] \Events

Date/time	Where	Event description	Event details
05/06/2000 11:11:05	Car park barrier (In)	Access permitted - card only	
05/06/2000 11:10:39	Main entrance (In)	Access permitted - card only	
05/06/2000 11:10:33	Sales (In)	Access permitted - card only	
05/06/2000 11:06:56	Car park barrier (In)	Access permitted - card only	
05/06/2000 11:06:22	Car park barrier (Out)	Access permitted - card only	
05/06/2000 11:03:43	Factory (In)	Access permitted - card only	
05/06/2000 11:03:14	Mail room (Out)	Access permitted - card only	
05/06/2000 11:00:16	Mail room (In)	Access denied - invalid card	
05/06/2000 10:59:15	Stores (Out)	Access permitted - card only	
05/06/2000 10:57:58	Factory (In)	Access denied - invalid card	
05/06/2000 10:57:19	Stores (In)	Access permitted - card only	

This tab displays the events for that user. This can be useful if trying to locate a user in a large building, simply go to the user record and see where they presented their card last. The events in this screen can be sorted by any of the columns by clicking the left mouse button over the column header.

Users\[User name]\Current validity



This tab shows where the user is currently valid. The readers on which the user is currently valid will be highlighted.

Events – General information

An 'Event' is the report of an incident that has occurred on the system. For example, when a user presents their card and is permitted access at a door, an event is sent to the PC. The event documents the user concerned, the reader at which they presented their card, the time and date etc.

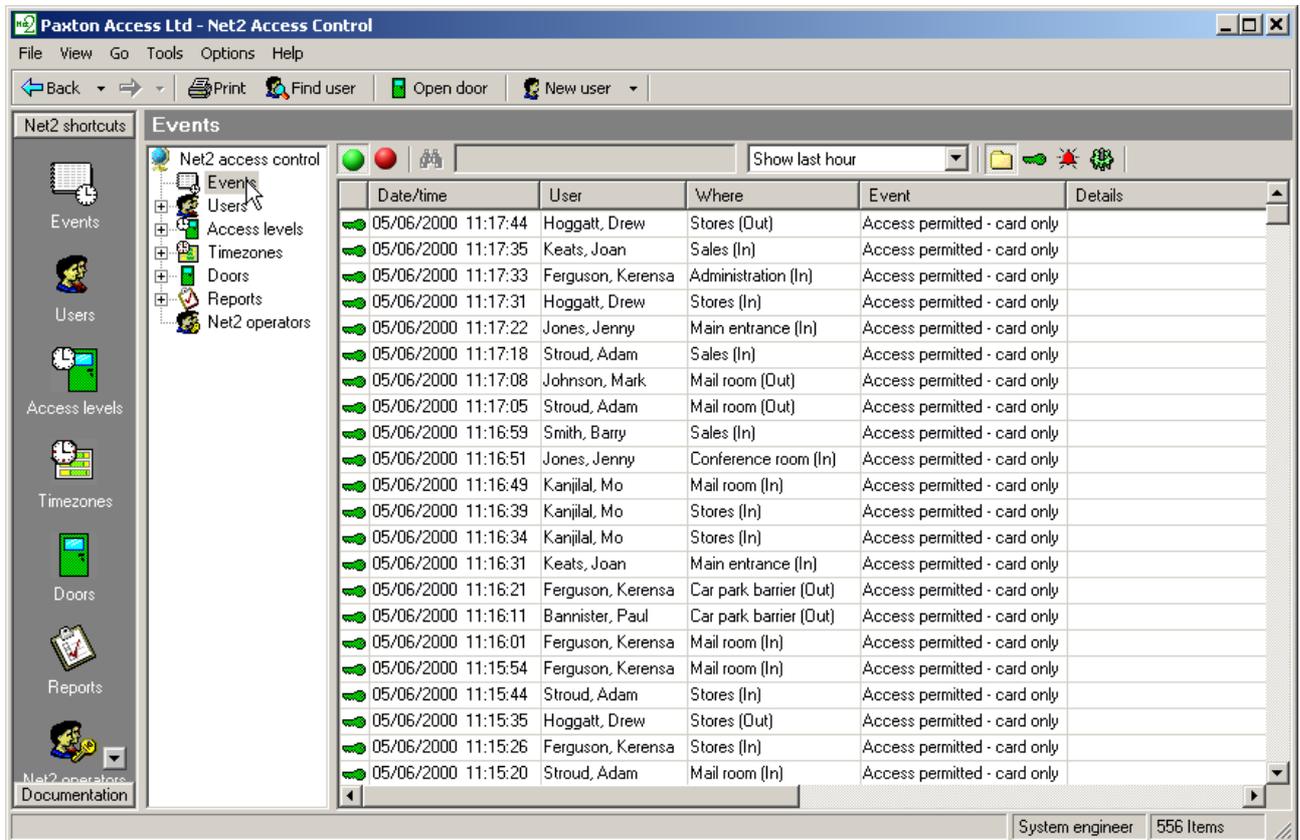
The following incidents produce an event:

Event	Description
 User access permitted	A user has been permitted access.
 User access denied	A user has been denied access.
 Door opened with exit button	Exit button has been used.
 Door opened with network instruction	Door has been requested open by software.
 Operator logon	An operator has logged onto the Net2 software.
 Operator Logoff	An operator has logged off of the Net2 software.
 ACU online	The control unit is communicating with the PC.
 Control unit reset	The control unit has been reset.
 Desktop reader	A card has been presented or swiped at the desktop reader.
 Door forced open	A door has been opened without the permission of the access control system.
 Door left open	A door has been left open for longer than the specified maximum time.

	Tamper	The control unit enclosure has been tampered with.
	Mains fail	The mains supply to the control unit has failed.
	Card not valid – card reported as lost	A card that has been marked as lost has been used on the system.
	ACU not responding	The control unit is not communicating with the PC.

If the PC is switched on, events will be reported almost immediately. If the PC is switched off, the event will be held at the control unit (2,300 event buffer) until the PC is next switched on.

Events



Date/time	User	Where	Event	Details
05/06/2000 11:17:44	Hoggatt, Drew	Stores (Out)	Access permitted - card only	
05/06/2000 11:17:35	Keats, Joan	Sales (In)	Access permitted - card only	
05/06/2000 11:17:33	Ferguson, Kerensa	Administration (In)	Access permitted - card only	
05/06/2000 11:17:31	Hoggatt, Drew	Stores (In)	Access permitted - card only	
05/06/2000 11:17:22	Jones, Jenny	Main entrance (In)	Access permitted - card only	
05/06/2000 11:17:18	Stroud, Adam	Sales (In)	Access permitted - card only	
05/06/2000 11:17:08	Johnson, Mark	Mail room (Out)	Access permitted - card only	
05/06/2000 11:17:05	Stroud, Adam	Mail room (Out)	Access permitted - card only	
05/06/2000 11:16:59	Smith, Barry	Sales (In)	Access permitted - card only	
05/06/2000 11:16:51	Jones, Jenny	Conference room (In)	Access permitted - card only	
05/06/2000 11:16:49	Kanjilal, Mo	Mail room (In)	Access permitted - card only	
05/06/2000 11:16:39	Kanjilal, Mo	Stores (In)	Access permitted - card only	
05/06/2000 11:16:34	Kanjilal, Mo	Stores (In)	Access permitted - card only	
05/06/2000 11:16:31	Keats, Joan	Main entrance (In)	Access permitted - card only	
05/06/2000 11:16:21	Ferguson, Kerensa	Car park barrier (Out)	Access permitted - card only	
05/06/2000 11:16:11	Bannister, Paul	Car park barrier (Out)	Access permitted - card only	
05/06/2000 11:16:01	Ferguson, Kerensa	Mail room (In)	Access permitted - card only	
05/06/2000 11:15:54	Ferguson, Kerensa	Mail room (In)	Access permitted - card only	
05/06/2000 11:15:44	Stroud, Adam	Stores (In)	Access permitted - card only	
05/06/2000 11:15:35	Hoggatt, Drew	Stores (Out)	Access permitted - card only	
05/06/2000 11:15:26	Ferguson, Kerensa	Stores (In)	Access permitted - card only	
05/06/2000 11:15:20	Stroud, Adam	Mail room (In)	Access permitted - card only	

The main display shows the events in date/time order. The most recent events are displayed at the top.

Date/time, user and location are recorded as well as a description if the event.

The events are reported in real time. The green and red buttons at the top left corner of the main display control the flow of events. The red button will stop the events screen being updated. The green button will allow events to be reported immediately.

Event search

Events may be searched for keywords. A search can only be performed when the red button is pressed, i.e. the event screen is not being updated.

The text to search for is entered into the text box at the top of the screen. Pressing the binocular icon will search for any events containing this text. The events with matching text will be displayed.

For example, to search for events at the front door type 'front door' in the text box and press the binocular icon.

Event filtering

Events displayed can be filtered by time and type of event.

The time span over which the events appear in the event screen can be selected from the drop down menu. The options are: Show last hour, Show today, Show last 7 days and Show all.

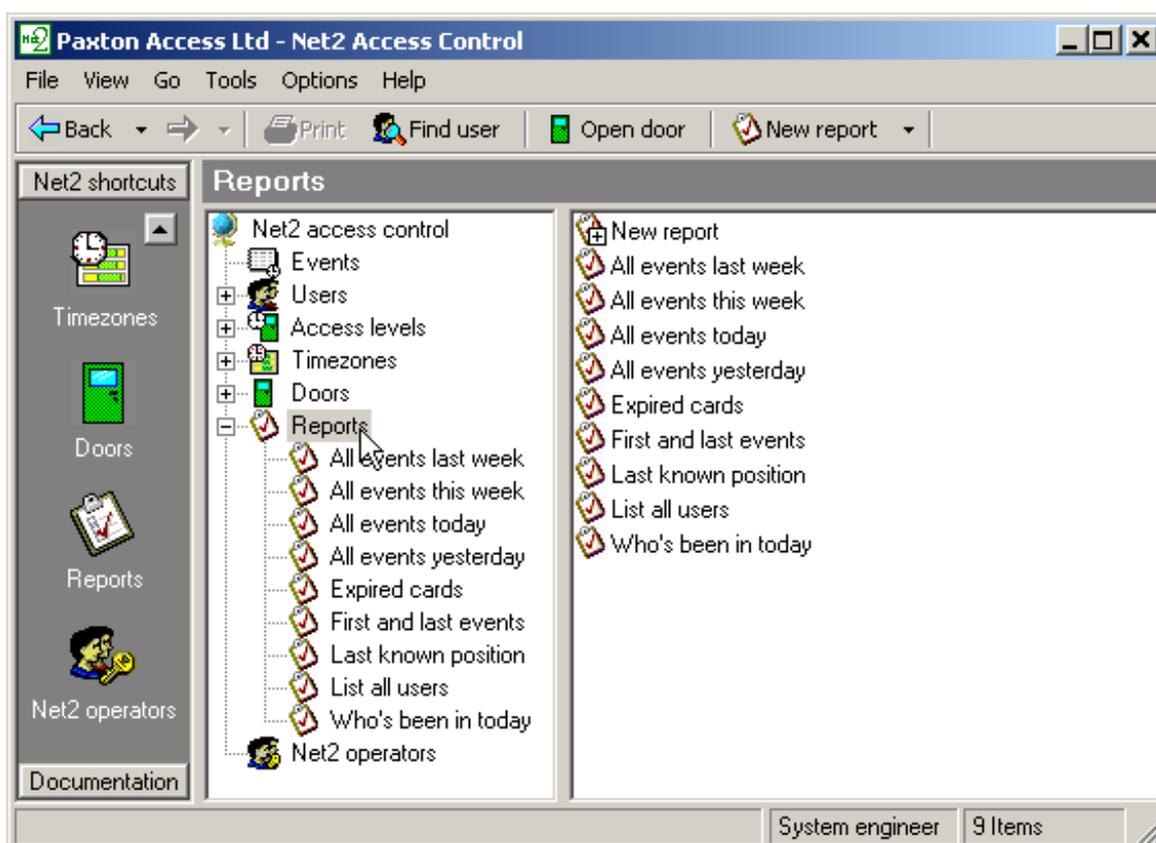
The type of event that is displayed in the event screen can be selected using the icons at the top of the screen. The options are: Show system events only, Show alarm events only, Show access events only and Show all event types.

Note: Double clicking an event involving a user will automatically open their user record. Double clicking an alarm event will give the option to acknowledge the alarm, changing the icon colour to green.

Reports – General information

Reports can be produced on various aspects of access control system. There are a number of default reports. These can be run at any time. In addition to the default reports, reports can be configured by the user. Once a report is configured the 'template' can be saved and used whenever required.

All reports can be sorted by any of the fields (i.e by time, by user name) by clicking on the column headers. Columns can be dragged and dropped into any order required.



Reports – Running the default reports

Default reports are run by double clicking on the relevant icon.

All events (last week, this week, today, yesterday)

Displays all events that happened during the specified time period.

Displayed fields are: Date/time, User, Where, Event, Details.

Sunday is start of the week as default. This can be changed in Options\General.

Expired cards

Displays all users with cards that have expired. Displayed fields are: User name, Access level, Department, Valid from, Expires.

First and last events

Displays a list of all users with the time of their first and last events of today. Also shown is the difference in hours between the two times.

Last known position of users

Produces a complete list of users along with location of their last event. Displayed fields are: User name, Date/time, Where, Event, Description.

List all users

Produces a complete list of all users on the system. Displayed fields are: User name, Access level, Department, Valid from, Expires.

Who's been in today

Produces a list of the users that have used the system today. Displayed fields are: Date, User name, Department.

Note: This is not a list of users currently in the building!

Reports – Adding a new report



The report wizard is launched by double clicking the 'New report' icon. The users (or departments) that the report is required for are selected. The relevant readers are selected from the list. Finally the time period for the report is selected. The time period can be set in two ways:

Standard

The time scale of the report is selected from the drop down list. Options include: Today, Yesterday, This week, Last week, This month, Last month, This year and Last year.

Note: If the report is saved to be used again, a time scale from this menu should be selected.

Advanced

The time scale of the report can be selected between a particular date range. Start and end dates can be selected from the drop down calendars.

Net2 operators – General information

The term 'Net2 operator' relates to a person that has access to and uses the Net2 software. The Net2 software can have up to 50 operators.

Operator privileges

Net2 operators can be assigned different privileges allowing them various levels of access to the features of the system. Operator privileges are split up into 4 levels:

System engineer

Full access to all system features.

Supervisor

Full access to all system features apart from deleting and replacing a control unit (and refreshing firmware).

A supervisor cannot upgrade the Net2 software (only System engineer).

Card Administration

Everything can be viewed but only user records can be edited. Reports can be run but not created.

Standard (Read only)

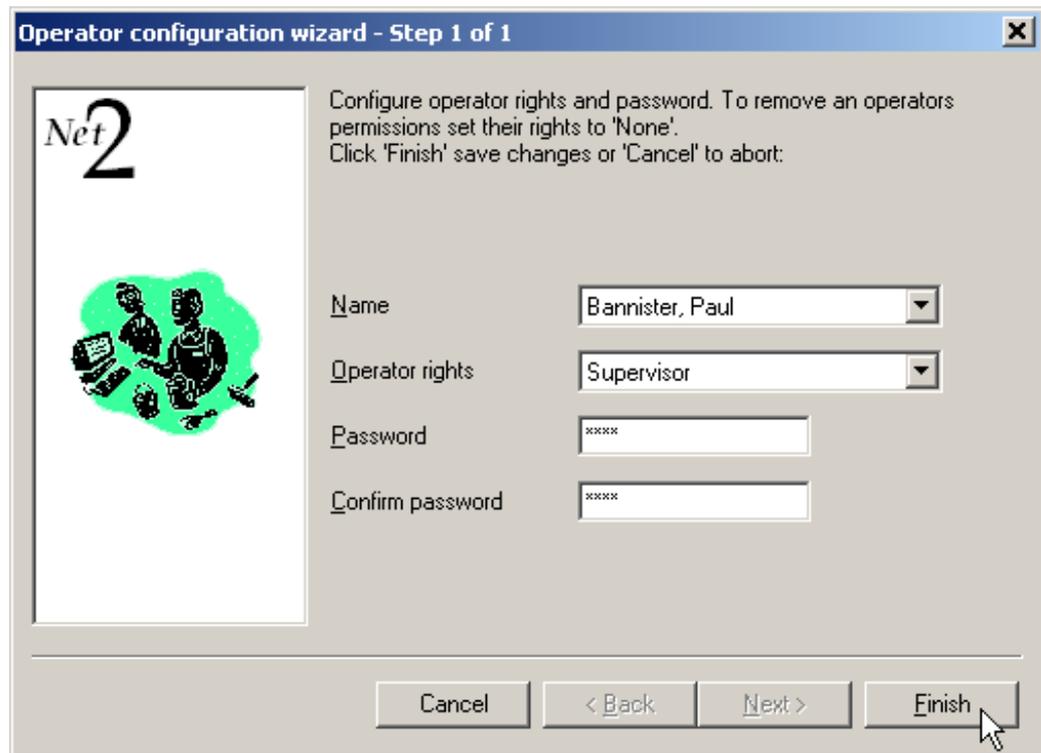
Everything can be viewed but nothing can be edited.

Events only

Only events can be viewed. Nothing can be edited.

Net2 operators

The new operator wizard is launched by double clicking on the 'New operator' icon.



Operator configuration wizard - Step 1 of 1

Net2

Configure operator rights and password. To remove an operators permissions set their rights to 'None'. Click 'Finish' save changes or 'Cancel' to abort:

Name: Bannister, Paul

Operator rights: Supervisor

Password: xxxx

Confirm password: xxxx

Buttons: Cancel, < Back, Next >, Finish

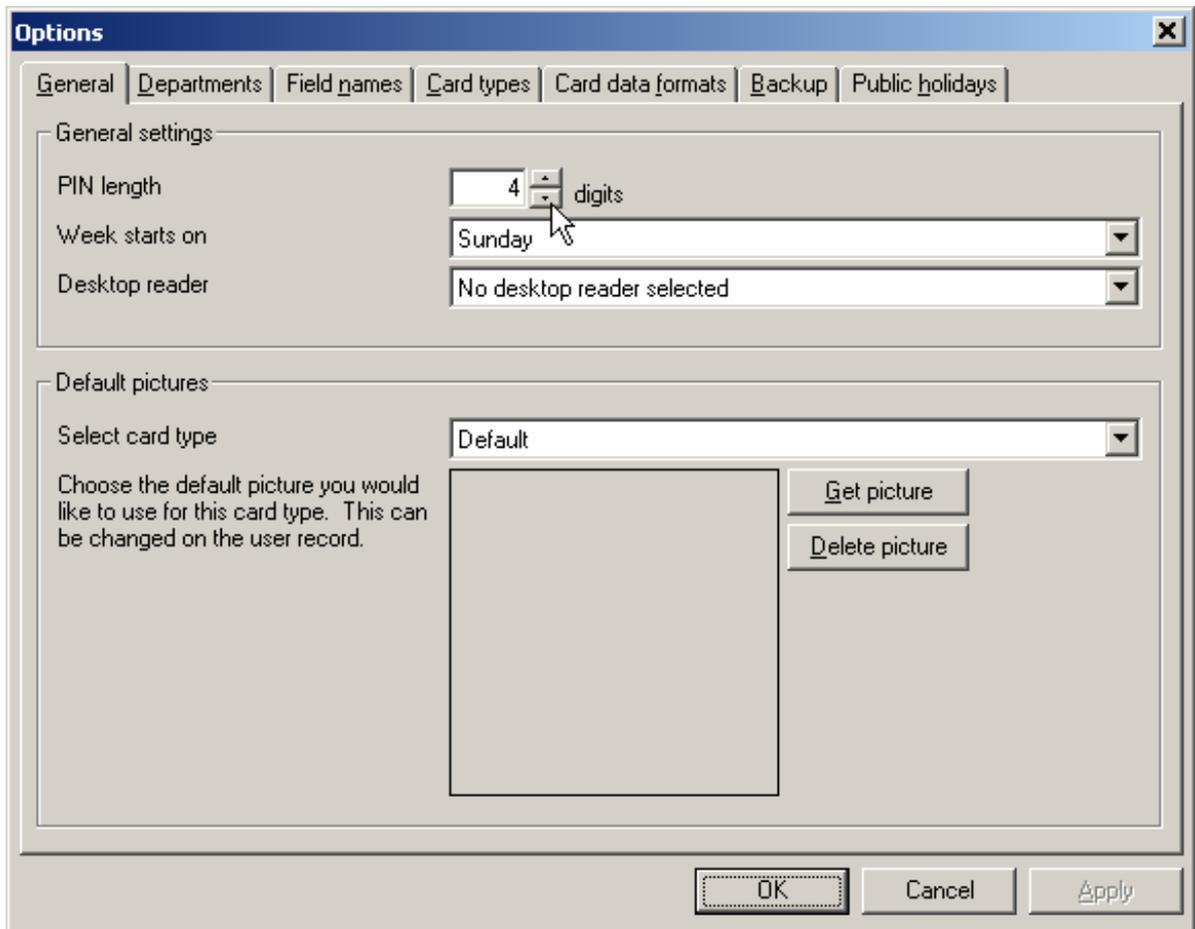
Before an operator can be added, they must first be a 'User' on the system. Select the new operator from the drop down list of users. Select the required operator privilege from the drop down menu. Get the new operator to type in their password and confirm it.

Note: Only System engineers and Supervisors can create operators. Supervisors cannot create System engineer operators.

Options – General information

Options can be accessed from the drop down menu at the top of the screen. All system wide settings are configured in Options.

Options \ General



PIN length

PIN stands for Personal Identification Number. If there are any keypads on the system then PINs can be used to identify users. PINs can be between 4 and 6 digits long.

Week starts on

The default setting is that the week starts on Sunday. This can be modified if required.

Desktop reader

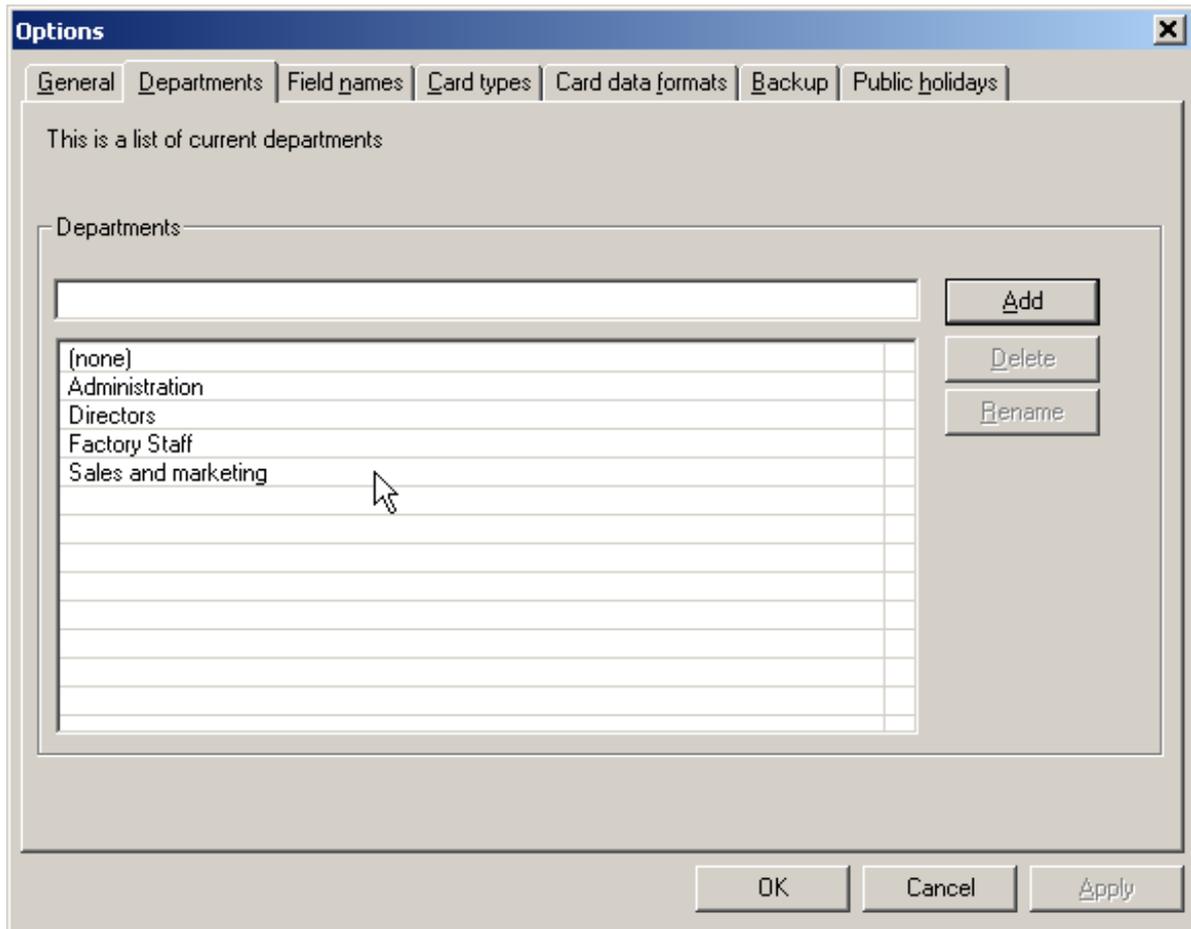
If there is more than one desktop reader on the system, this selects which is used.

Default pictures

A default picture can be set for each card type (for more information on card types, refer to *About... \ Options \ Card types*). Bmp, jpg, gif, wmf and emf formats are supported.

A copy of any picture used is stored in C:\Net2 access control\Pictures.

Options \ Departments



Users can be grouped together by department. This is particularly useful when there are a large number of users on the system. Having users grouped together by department enables quick reporting and viewing of users.

Any number of departments can be created. The name of the new department is simply entered into the text box. The new department is added to the list by pressing the **Add** button. Departments can be deleted and renamed using the relevant buttons.

Departments will be displayed in the treeview window and the main display window.

Options \ Field names

Options

General | Departments | Field names | Card types | Card data formats | Backup | Public holidays

Many labels on the User Record control are user definable

Field names

Field #1	Address 1
Field #2	Address 2
Field #3	Town
Field #4	County
Field #5	Post code
Field #6	Home telephone
Field #7	Home Fax
Field #8	Mobile
Field #9	Email
Field #10	Position
Field #11	Start date
Field #12	Car registration
Field #13	Notes
Field #14	Personnel number

Allow user definable fields to be edited by double clicking on them

OK Cancel Apply

In the user records there are 16 fields that are user definable. The default settings for these fields are: Address 1, Address 2, Town, County, Post code, Home telephone, Home fax, Mobile, E-mail, Position, Start date, Car registration and Memo. Any of these fields can be modified as required.

There is an option that allows the field names to be changed by double clicking on them in the user record. This can be enabled/disabled.

Options \ Card types

The screenshot shows the 'Options' dialog box with the 'Card types' tab selected. The 'Card type' dropdown is set to 'Default'. The 'Default values' section includes:

- Valid from: 23/05/2000
- Valid until: Card never expires
- Access level: No access
- Department: (none)

A table below lists 16 user definable fields:

Telephone	
Extension	
Fax	
Address 1	
Address 2	
Town	
County	
Post code	
Home telephone	
Home Fax	
Mobile	
Email	

Card types can be created with default settings for:

- Valid from
- Valid until
- Access level
- Department
- All 16 user definable fields

When adding a new user, simply select the card type and all of the required fields will be set automatically. This is particularly useful where lots of new users are being added and many of their details are the same.

To add a new card type press the **Add** button. Enter the name of the card type in the text box and press the tick icon to accept. Select the Valid from date from the drop down calendar. Select the Valid until date from the drop down list. The simple options for Valid until are:

- Card never expires
- Card valid today only
- Card expires after Monday
- Card expires after Tuesday
- Card expires after Wednesday
- Card expires after Thursday
- Card expires after Friday
- Card expires after Saturday

Card expires after Sunday
Card valid this month only
Card valid this year only

If advanced is selected, a date can be selected from the drop down calendar.

Select the access level from the drop down list. Select the department from the drop down list. Enter values for any of the 16 user definable fields. Once all of the details are correct, the **Apply** button commits all changes to the database.

As many card types as required can be added.

Card types can be deleted and renamed using the relevant buttons.

Note: Visitor is set up as a default card type.

Options \ Card data formats

The screenshot shows the 'Options' dialog box with the 'Card data formats' tab selected. The 'Card format' dropdown is empty. The 'Add' button is highlighted by a mouse cursor. The 'Card format detail' section has three dropdown menus for 'Starting from', 'Read forwards/backwards', and 'Number of digits'. The 'Test card decoding' section has two text input fields for 'Enter Card Number to Test' and 'Will be decoded as'. The 'Apply' button is visible at the bottom right.

The Net2 system identifies users by reading an 8 digit number from their user card/token. Each user has to have a unique number for the system to recognise them. If cards other than the Net2 cards are used, only a portion of the data on the card may be unique. It is possible to configure the Net2 system to look at the unique part of the card information.

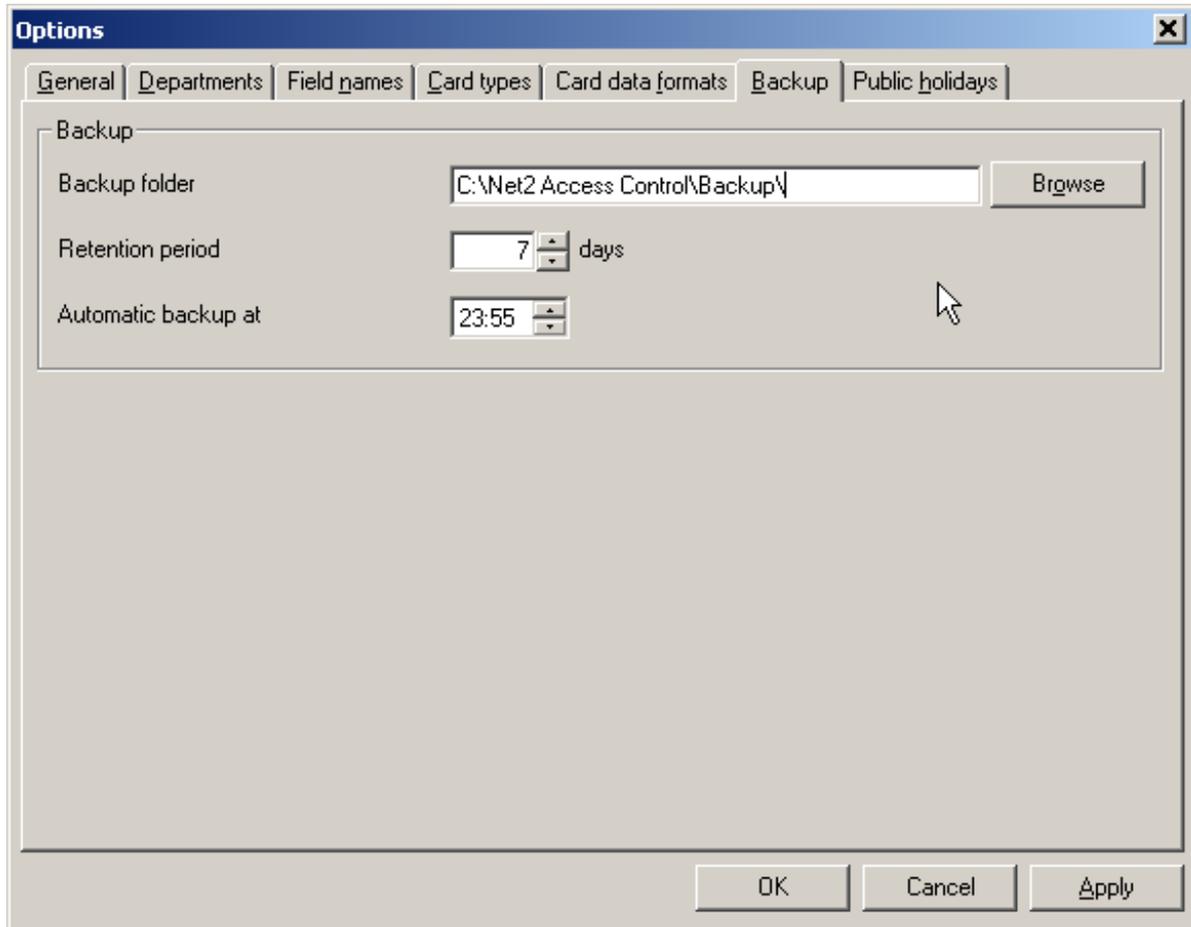
A new card data format can be configured by pressing the **Add** button. Enter the name of the new data format in the text box and press the tick icon to accept. Select the part of the card data that is unique by adjusting the settings as required.

The settings can be tested by entering a card number (or swiping through the desktop reader). The way that Net2 will interpret the information is displayed.

Note: To implement a card data format, it must first be selected in Doors, refer to About... \Doors \{Door name} \Reader 1.

Card data formats can be deleted and renamed as required.

Options \ Backup



System backup

All system settings and user details are stored in an Access 7 database (Net2System.mdb). If this database is corrupted or deleted, the system will have to be reconfigured and all user records will be lost. For this reason it is essential that a backup copy of this file is made on a regular basis.

The Net2 software creates backup files automatically. A separate copy of the Net2System.mdb database is made every day the software is used. The backup file for a day has the date included in the file name (Net2System YYYYMMDD.mdb). The backup file is created either:

1. When the application is closed down

OR

2. At the automatic backup time as set in Options \ Backup

If a backup file has already been created for that day, the file will be overwritten with the most current version of the database.

The retention period dictates the number of days that the backup files are kept for.

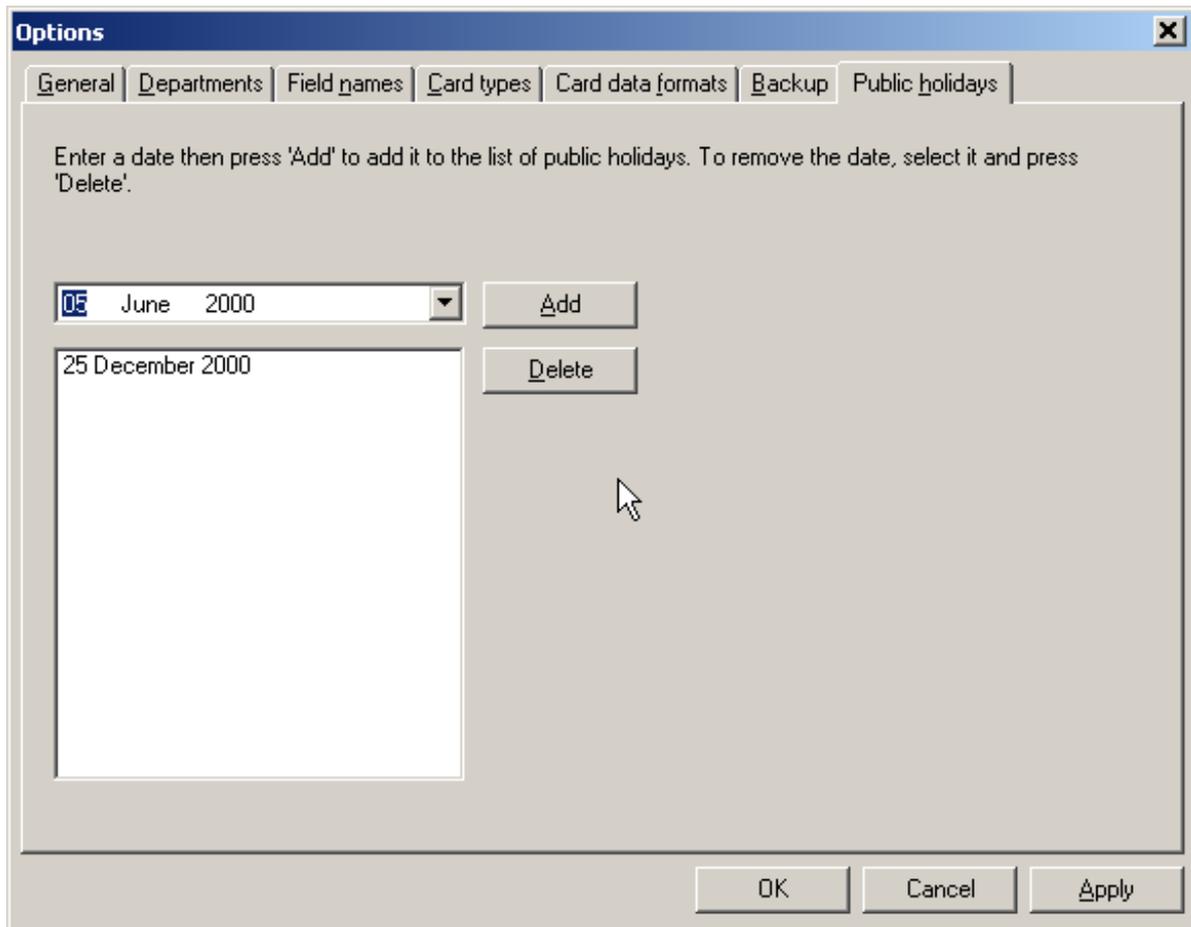
Note: Backup files should be saved on a different drive to the Net2System.mdb file.

Event backup

10,000 events are stored in NetSystem.mdb. These are the events that are displayed in the event screen. In addition, 12 months worth of events are stored in Net2Events.mdb.

Events are automatically archived to the backup folder. The archived event files are split into individual years (i.e. Net2 Events 1999.mdb and Net2 Events 2000.mdb).

Options \ Public holidays



Certain days can be nominated as public holidays. Days can be added to the list of public holidays using the drop down calendar.

When a day is nominated as a public holiday, the validity of users will depend on the public holiday settings in Timezones, refer to *About... \ Timezones \ [Timezone name]*.

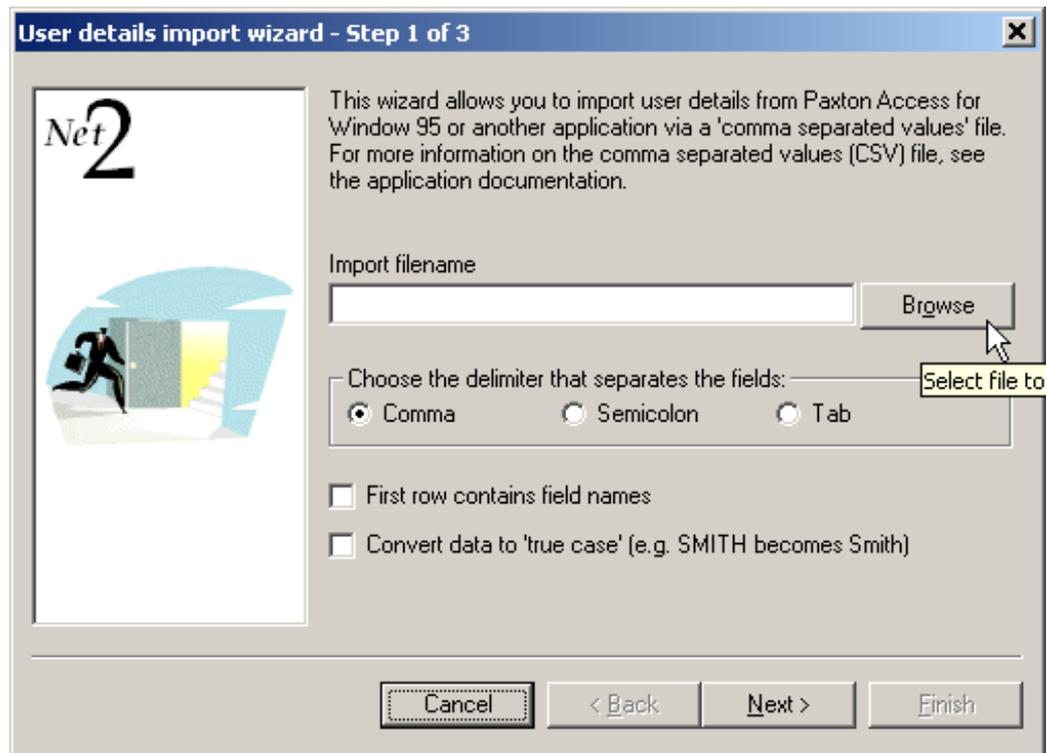
Other features

Print

The print feature can be accessed from the toolbar at the top of screen and can be used to print events and reports.

Note: If only part of the events screen/report is required, highlight the relevant section and press Print. Only the highlighted area will be printed.

Other features\Import wizard



The import wizard can be accessed from the drop down File menu at the top of the screen.

Using the wizard it is possible to import user details from an external file. For example, if a sports club has a database of its users, all of the user details can be downloaded straight into the Net2 system thus preventing duplicate data entry.

The user information must be saved as a TXT (Text) or CSV (Comma Separated Variable) file. Fields can be comma, semi-colon or tab separated. The fields must be in the order as shown in the table. (Note that only the first 2 fields are required)

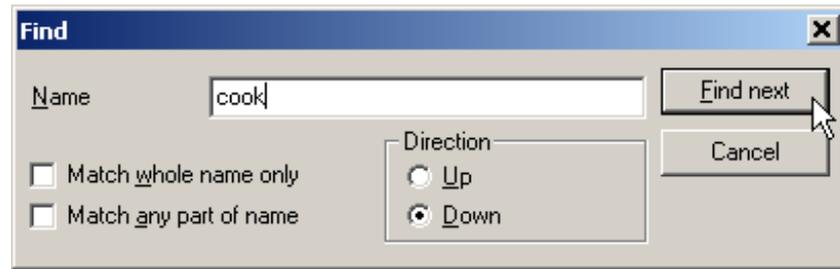
Field number	Net2 field name	Notes
1 *	Surname	Required – Text up to 50 characters
2 *	Firstname	Required – Text up to 50 characters
3 *	Middlename	Text up to 50 characters
4	CardNo	Number 1000 to 99999999
5	PIN	Number 1000 to 999999
6 *	Department	Text up to 50 characters
7 *	Access Level	Text up to 50 characters
8	Telephone	Text up to 50 characters
9	Extension	Text up to 50 characters
10	Fax	Text up to 50 characters
11	Active date	Date in the default language format e.g. in the UK it is dd/mm/yyyy
12	Expiry date	Date in the default language format e.g. in the UK it is dd/mm/yyyy
13 *	Field1_100 (Address 1)	Default field name shown in brackets Text up to 100 characters
14 *	Field2_100 (Address 2)	Text up to 100 characters
15 *	Field3_50 (Town)	Text up to 50 characters
16 *	Field4_50 (County)	Text up to 50 characters
17	Field5_50 (Post code)	Text up to 50 characters
18	Field6_50 (Home telephone)	Text up to 50 characters
19	Field7_50 (Home fax)	Text up to 50 characters
20	Field8_50 (Mobile)	Text up to 50 characters
21	Field9_50 (Email)	Text up to 50 characters
22 *	Field10_50 (Position)	Text up to 50 characters
23	Field11_50 (Start date)	Text up to 50 characters
24	Field12_50 (Car registration)	Text up to 50 characters
25 *	Field13_Memo (Notes)	Text up to 65535 characters (cannot contain field separator).
26	Field14_50 (Personnel number)	Text up to 50 characters

The text file can be browsed to from the import wizard. The correct field separator must be selected from the list.

The first row can be ignored if it contains the field names. Check the box if required.

Text can be converted to true text if required (i.e. SMITH becomes Smith). Only the fields marked with an asterisk (*) in the table are affected by the 'Convert to true case' option. Check the box if required.

Other features\Find user

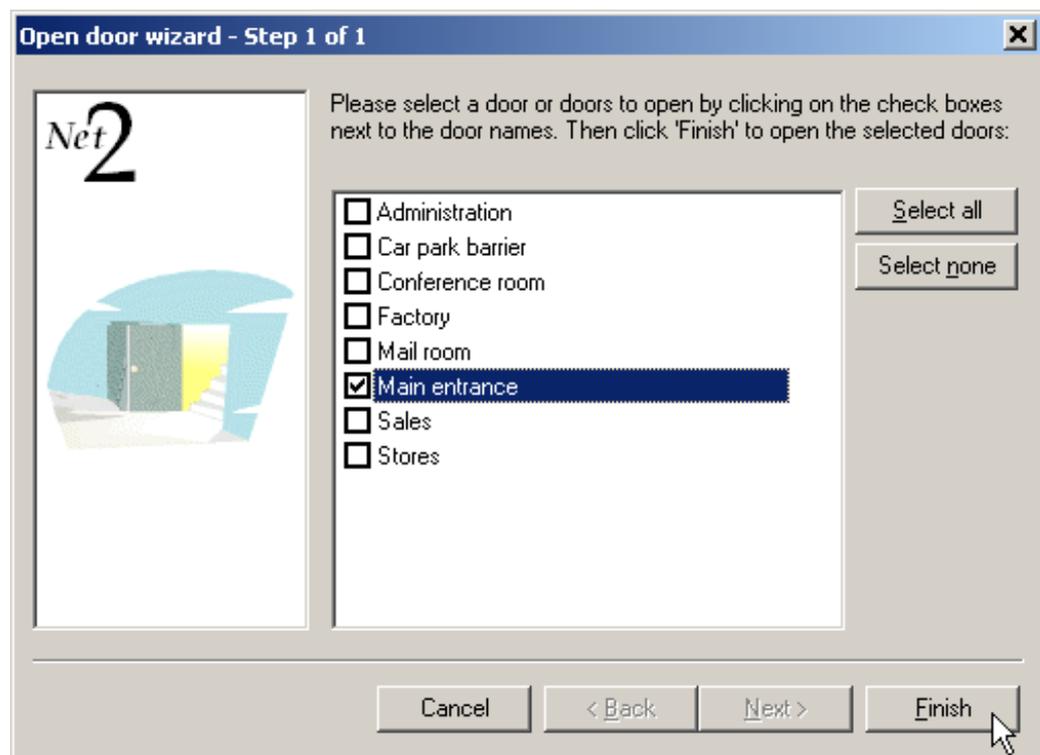


The find user wizard can be accessed from the toolbar at the top of the screen. If there are a large number of users on the system, it may save time to use the find user wizard. The whole name or any part of the name can be searched for.

The users are listed alphabetically by surname. **Up** and **Down** refer to the direction the wizard will look for its next match.

Note: When the Users icon is highlighted in the treeview, typing the first few letters of a users surname will jump to their record.

Other features\Open door



The open door wizard can be accessed from the toolbar at the top of the screen. Any doors on the system can be made to open for door open time from the software.

Other features\Update wizard



The update wizard can be accessed from the drop down Help menu at the top of the screen (**Check for update** option).

Note: *An Internet connection is required to use this wizard.*

The wizard will check the Internet for any software upgrades available. An upgrade should only be performed by the installation company. A backup copy of the database should be made before the upgrade is attempted.

Note: *Only operators with System engineer operator privilege have access to the update wizard.*

If any problems are experienced when upgrading please contact the Paxton Access technical helpline.

Chapter 3 What if the system is not working?

Is the problem genuine?

Simple checks

Paxton Access technical helpline

Is the problem genuine?

Experience at first hand that the problem is genuine. Reported faults are invariably caused by user error. False alarms may be generated by:

- Incorrect swiping of a magstripe card
- Worn or damaged magstripe cards
- Proximity token not presented within read range
- Incorrect procedure at the PC (changes not being applied for example)

If a genuine problem has been identified, firstly make sure that the problem can be duplicated. Document the exact nature of the problem, this will enable your installer and the Paxton Access technical help department to solve the problem quickly.

Once the problem has been identified, duplicated and documented, perform the simple checks in the next section.

Simple checks

Firstly, exit the Net2 software and reboot the PC. If problems persist...

Problem	Check...
Events are not reporting in the Events screen	<p>Check the green update button is pressed in the Events screen. If the red button is pressed, it will prevent the screen from being updated.</p> <p>Check that events are actually occurring on the system.</p> <p>Check that none of the filters are active on the Events screen. Select Show all from the drop down list and press the Show all events icon.</p>
Doors are not opening when cards are presented	<p>Go to a door where the problem has been reported and ensure that the reader LEDs are on. If they are not then the reader has no power. Check mains supply and contact installer.</p> <p>If the red LED is flashing when a card is presented, check the validity of the user at the PC.</p> <p>If the green LED is flashing when a card is presented, check the connections to the locking mechanism. Call out installer if required.</p>
User validity is different from that shown on the software	<p>Check any changes that are made using the software are applied (press Apply).</p> <p>Ensure that the Net2 server is running. If not, double click on C:\Program files\Access Control\Net2\Net2Svr.exe.</p> <p>Press the Reinstate button in the Doors screen. This synchronises the information in the database and the control units.</p>
Control units are showing as not responding in Doors screen	<p>Check that the RS485/232 converter has power.</p> <p>Check that the RS485/232 converter is connected to the COM port of the PC.</p> <p>Check the mains supply to the control units.</p> <p>Ensure that the Net2 server is running. If not, double click on C:\Program files\Access Control\Net2\Net2Svr.exe.</p>

Paxton Access technical helpline

Paxton Access offer a telephone technical help service. This is designed to assist customers with technical problems. Many technical problems can be solved by following advice given over the phone, however many problems will require an installer to attend site.

To qualify for technical support, a valid technical support ID number is required. This number is generated from the software and can be accessed by selecting **Technical support** in the **Help** drop down menu at the top of the screen. The technical support ID number will only be valid if the software had been registered.

To assist our technical help staff to diagnose any problems quickly please ensure that:

- The person calling has full details of the problem at first hand
- The person calling has a working knowledge of the Net2 system
- Details of the system are at hand i.e. number of doors/users, type of readers
- The person calling has read this manual and has followed its guidelines and simple checks
- The person calling has the technical support ID number

The Paxton Access technical helpline is available Mon-Fri 8.30am-5.30pm.

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Chapter 4 Appendix

- (i) Difference between code and PIN explained
- (ii) Glossary
- (iii) Upgrading from V1 to V2

Appendix (i) Difference between code and PIN explained

PIN stands for Personal Identification Number. This is a number that is specific to an individual user. A user code can be common to many users.

Example of code only: A keypad has two codes to control the access of 1,000 users through an access point. 300 users use one code and 700 use the other.

Codes are very quick to setup; thousands of users can be given access to an area if the code is disclosed. Access privileges can be adjusted for groups of users, where the users are grouped together by a common code.

Example of PIN only: A keypad controls the access of eight users through a door. Each of the eight users has their own PIN, which they use to gain access.

Using PINs mean that access rights can be changed for every individual without affecting other users. PINs also allow users to be identified by the system for reporting purposes. However, more numbers valid on a keypad will increase the chances of guessing a correct number. This means that a non-authorised person can gain access by randomly pressing keys on the keypad. To reduce these risks to an acceptable level it is necessary to increase the number of digits in the PIN.

Example of card plus code: A proximity reader and a keypad are used to control access through a door. A user is required to present their proximity card to the reader and enter a valid code.

This involves two elements of security – possession and knowledge. The possession of the card is required AND a valid code has to be known. If the card is lost it cannot be used on its own. If the code is discovered it cannot be used without a valid card.

Example of card plus PIN: A magnetic stripe reader and a keypad is used to control the access through a door. A user is required to swipe their card and enter their PIN number. Only the combination of that user card AND that user PIN number is acceptable.

This involves both possession and knowledge but increases security even further. If a user card is lost it can only be used to gain access when used with the specific PIN number. For security reasons bank cash machines use a card plus PIN system.

Appendix (ii) Glossary

General access control terms

Access control system	An access control system comprises input for identification (e.g. a keypad or reader), intelligent electronics for decision making and outputs for operating access point hardware and the access point hardware itself (e.g. locks, barriers).
Access Control Unit (ACU)	A general term to describe a range of devices which have the control electronics and intelligence to make the decision to allow access at one or several points. It will have connectors or cables ready to link to readers, keypads, locks, etc.
Access level	An access level is a particular level of access privileges with relation to time.
Coercivity	Coercivity relates to the resilience of the encoding of a magnetic stripe card. Hi coercivity encoded magstripe cards are more resilient to data corruption than Lo coercivity cards.
Distributed intelligence	In a networked access control system access control units are linked and communicate with each other or a PC used to control the system. Distributed intelligence means that the access control units hold user information and system settings locally. This enables the ACUs to carry on functioning if communications links are severed.
Door open time	An electric locking device has power supplied/denied to release and allow access when a valid token is presented. The time period that the electric release is energised/de-energised is referred to as the door open time.
Event recording	Access control units may be provided with memory to record events. Events recorded should include the access point details, date, time and user ID for each occasion when access is granted. Many other events may be recorded depending on the system e.g. details of access denied and alarm events. Where events are recorded the access control unit will be capable of sending the information to a printer or computer.
Magstripe	Magnetic stripe reading technology – cards with a number encoded on a magnetic stripe are swiped through a slot on a reader.
Network system	A system where access control units are linked together by data cable for the exchange of information between units. The purpose of this is to provide easier configuration and better management information for larger and more complex applications. All access points on the system can be set up from a single point. The access control units on network systems record events. Most systems allow for a computer to be connected to the network to allow control and reporting to be carried out from a dedicated program.
Photo ID	Where a photograph of the user is printed or attached to their user token allowing them to be identified.
Proximity	The proximity device is held close to the reader and sends a unique number by radio signal to the reader.
Timeslot	A timeslot is a time period on a particular day of week. An example of a timeslot is between 9am and 5pm on Tuesday.
Timezone	A timezone is a combination of timeslots in a week. An example of a timezone is Working hours between 9am and 5pm Mon to Fri.
User token	This is a generic term for the devices that users of an access control system use to identify themselves and gain entry through access points. User tokens may be magstripe cards, proximity keyfobs, smart cards, etc.

Paxton Access terminology

Proximity ISO card	ISO cards are the same size as standard bank or credit cards. They can be used with standard card printers for photo ID. They also have a magnetic stripe that can be encoded for use with other systems such as vending.
Proximity keyfob	Keyfobs are for applications where convenience is important. They are made of hard plastic and will fit onto a keyring. They can be attached to car/house keys for reduced losses, hence reducing the cost of replacing fobs.
Proximity card	Tokens are about credit card size but are thicker. They can be used from inside wallets or handbags. Adhesive plastic stickers can be applied for photo ID and the slot in the tokens makes them ideal for use with low cost badge clips.

Appendix (iii) Upgrading from V1 to V2

Verify that the system is communicating correctly

1. Run the Net2 software logged on as engineer
2. Go to the **Hardware** screen and press the **Detect** button
3. Check that each ACU has OK reported in the status column

To upgrade

Note: The PC will require re-booting during this procedure

1. Shut down the Net2 software and ensure that the communication server has also been shut down
2. Shut down any other programs that are running
3. Make a backup copy of the folder 'Net2 Access Control' – IMPORTANT
4. Insert the V2.00 CD ROM and wait for the CD to auto run, alternatively run setup.exe from the Net2 CD ROM
5. Follow the on screen prompts

Ready to run

1. Launch the Net2 software
2. Go to the Doors screen
3. The firmware version should now be reported as V2.XX and all ACUs should be reported as OK in the status column

Note: The Net2 communications server will automatically upgrade the ACU firmware

Note: The communications server will be initialised whenever the computer starts.

4. Check that events are being reported

Chapter 5 Specifications

<i>Net2 standard plus software</i>	
Maximum number of users	10,000
Maximum number of doors per data line †	200
<i>Net2 standard software</i>	
Maximum number of users	2,000
Maximum number of doors per data line †	50
Reading technologies supported	All Paxton Access readers: PROXIMITY, CARDLOCK magnetic stripe, TOUCHLOCK keypads
Individual access rights by access point	All users, all access points
Individual timezones	All users
Access levels	Up to 250
Timezones	Up to 64
Read in and read out	Yes
Card plus PIN (Personal identification number)	Yes
PIN only entry	Yes
Number of system operators	unlimited
System operator privileges	4 levels
System operator log on to software	Individual password protection
Desk top reader	Provides fast access to user records
Advance entry of Bank Holidays	Yes
Door held / wedged open alarm	Reported to software and output for local sounder at door
Door forced alarm	Reported to software and output for local sounder at door
Instant reports	Screen reports on recent events
Printed reports from entire access event history	Yes
Database format	Microsoft Access 97
Data available to other programs	Yes - including Word, Excel, Access, etc
Timed backup of event log	Manual backup required
Fail open (fail safe) locks	Yes
Door open time	1 to 5,000 seconds
Operates gates, barriers, turnstiles, etc	Yes - all equipment that can be switched by clean relays
<i>Network Details</i>	
Communications with other control units	RS485 full duplex 115,200 BAUD
Maximum number of control units	200
Full distributed intelligence	Yes
Off line memory in access control units	2,300 events
Access control unit user card capacity	10,000 Paxton Access proximity devices or magstripe cards
Access control unit user card capacity	10,000 bank / credit magstripe cards
<i>Details of supported readers</i>	
Magnetic stripe readers	CARDLOCK
Reader life	>1,000,000 swipes
Proximity readers	PROXIMITY
Reader life	Unlimited token reads
Keypads	TOUCHLOCK membrane or TOUCHLOCK stainless steel
Keypad life (key presses)	>100,000 membrane or > 1,000,000 for stainless steel
Water resistance	All readers IPX7 (submersible) except membrane keypad IPX5
Finishes of CARDLOCK and TOUCHLOCK	Black, brass or satin chrome
Finish of PROXIMITY	Black
Finish of TOUCHLOCK stainless steel	Stainless steel and satin chrome
† Net2 standard and standard plus software support one data line Minimum PC minimum specification: Pentium PIII/800 processor, 128 Mbytes RAM, UDMA hard disk with 1Gbyte free space, 800 x 600, 256 colour monitor (SVGA), a free UART 16550 serial port, mouse, keyboard and a CD ROM drive. Net2 is for use with Windows 98, Windows NT4 SP6 and Windows 2000. Windows XP should not be used.	

<i>Network communications</i>	
Network communications cable	Belden® 8723 (individually shielded pairs) *
Maximum length of communications bus	1,000m
<i>Access Control Unit</i>	
Number of doors per control unit	1
Memory in the event of complete power failure	All system settings and user details are retained for 7 days
Backup batteries ensure operation of	Entire system except PC - control of access continues
<i>Connections in the access control unit for each of the doors</i>	
Readers	1 or 2 (in, in/out)
Keypads	1 or 2 (in, in/out)
Analogue / digital inputs	4 (default uses: exit button, door contact, PSU monitor, tamper)
5 amp relay outputs (NC, and NO)	2 (default use: lock relay and door bell relay)
1 amp FET controlled output	1 (sinks up to 1A at 12Vdc, default use: local door alarm)
<i>Reader to access control unit distances</i>	
TOUCHLOCK keypad *	30m
TOUCHLOCK keypad stainless steel *	30m
CARDLOCK reader *	100m
PROXIMITY reader*	50m
<i>Access control unit power requirement details</i>	
Required supply voltage	9V to 15V dc
Maximum current for access control unit	350mA at 12Vdc (allow extra for FET output)
Maximum current for Paxton Access magstripe readers	65mA
Maximum current for Paxton Access proximity readers	70mA
Maximum current for Paxton Access keypads	45mA
Maximum current for other keypads and readers	See reader manufacturer's literature
Maximum current for locks	See lock manufacturer's literature
<i>Access control unit dimensions</i>	
Board size	102 x 116 x 30mm high
Recommended minimum space for board in other manufacturer's enclosures	200 x 170mm high
Board weight	190g
<i>NETWORK RS485 / 232 communications converter</i>	
Size	80 x 50 x 20mm
Communications protocols	RS232 to PC, RS485 to access control units
Maximum serial cable distance to PC	7m
Low voltage power supply	250mA 12V dc
<i>Desktop reader details</i>	
Type of reader	The reader type used at the doors on site may be used or:
Paxton Access dual technology desktop reader	Reads magstripe cards and Paxton Access proximity devices
Size of Paxton Access dual technology desktop reader	160 x 90 x 30 mm
Maximum distance to access control unit	As for other reader distances noted above
<i>Black plastic housing</i>	
Size	175 x 170 x 40mm
Features	Tamper switch, cable tie loops, cable entry knock outs
<i>PSU enclosure size</i>	
Details to be confirmed	
<p>* All reader and data cables should be segregated from mains power cables to avoid interference. IEE Regulations and normal good practice should be observed. Belden cables or exact electrical equivalents must be used. ®Windows 95/98, Windows NT, Access, Excel and Word are Registered Trademarks of Microsoft Corporation Inc. ® Belden is a Registered Trademark of Cooper Industries Inc.</p>	