



***Knowledge Base Article***

**Crystal Matrix  
Sample Database  
Guided Tour**

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## Document Version ( KBA0030SampleDatabase.Doc )

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11/15/2007	1.0	Shirl Jones	Initial Release

# 1: INTRODUCTION

There is a sample database available with the ISONAS Crystal Matrix software package. If installed (installing this database is optional), the database contains configuration examples that address some operational challenges that users often need to solve.

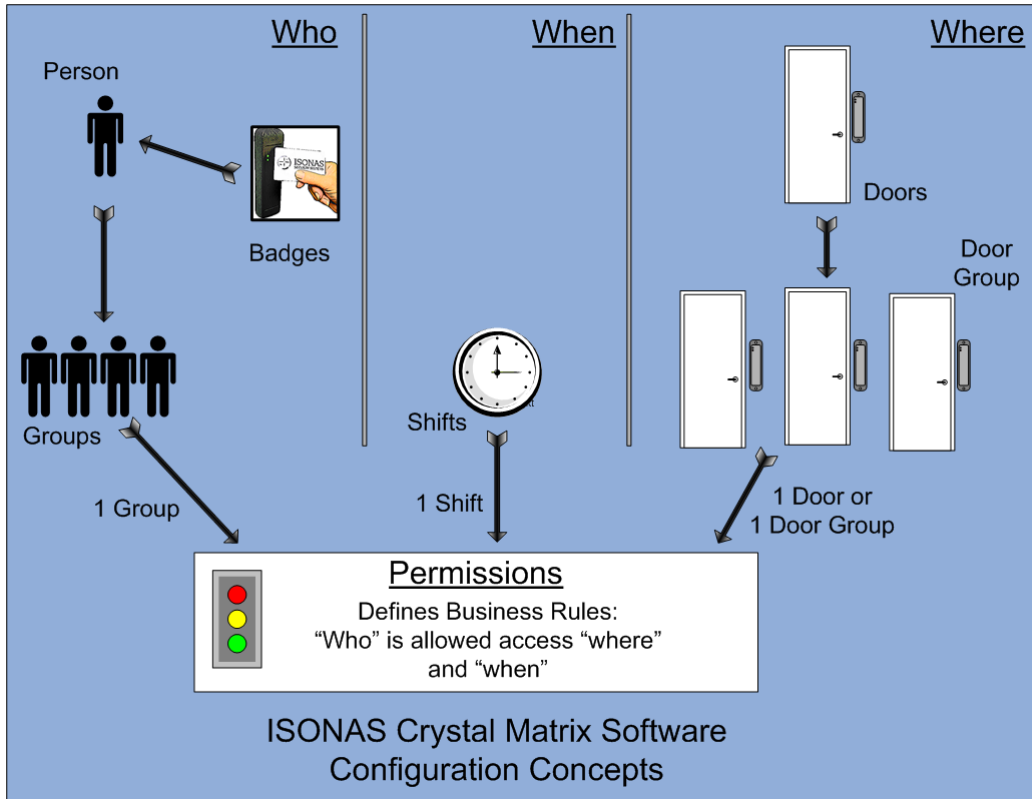
This document discusses the details and rationales behind these example configurations. By reviewing these examples, you will have a great start at understanding the functions and features that the ISONAS system provides you.

## **1.1: CONFIGURATION OVERVIEW:**

The sample database is intended to illustrate a large number of the features of the ISONAS system, and yet also to contain only a small number of records. The record count is kept small to save the user some clean-up work, since it is a common practice to delete these records, once the end-user has configured the access control system to match their needs.

The basic configuration of the ISONAS Access System involves defining Who is going to be let in, When they are going to be let in, and Where they are going to be let into.

The following diagram illustrates this process.



The process to define the **"Who"** involves adding people to the access system's databases, assigning one or more badges to each person, and then assigning them to one or more groups.

**"When"** is defined in the shifts area. A shift is based on days of the week, and start/stop times for each day.

By defining the Doors (Reader-controllers) and groups of Doors, the **"Where"** is defined.

**Who/Where/When** become building blocks that are combined into **"Permissions"** to become the business rules that the Access System follows.

## ***1.1.1: THE SAMPLE DATABASE'S BUILDING BLOCKS***

### **PEOPLE (WHO):**

The sample database contains a small group of people. Photos are associated with most of them. The people are assigned to a select number of groups.

### **SHIFTS AND HOLIDAYS (WHEN):**

An example set of Shifts and Holidays are defined. Different usages of shifts are shown in the Permissions area.

### **NETWORK AND DOORS (WHERE):**

There is a single Door (Atlanta\_Front) defined for use with a single reader-controller (possibility a Demo Unit), and a Group of doors (Tampa office) that are used to illustrate different configuration options.

The network of doors is configured to have two Controller Supervisors (CSUP's) that support the network. The network of doors is configured with example TCP/IP addresses.

Within the software, the Tampa Doors have been disabled, since they will probably not be associated with actual ISONAS reader-controllers.

## ***1.1.2: DEFINE THE BUSINESS RULES:***

### **PERMISSIONS**

In the Sample database a set of Permissions is defined, to illustrate the commonly used functions of the ISONAS system. The defined People, Shifts and Doors are used when defining the System's Permissions.

## 1.2: CONFIGURATION REQUIREMENTS:

One of the first steps to take when configuring the Access Control System is to build a list of the "Business Rules" that the user wishes the Access Control System to implement.

Below are the rules that the Sample Database implements.

Rule #	Description
1	The exterior doors of the Tampa office will be unlocked from 09:00 to 17:00 , Monday through Friday, excluding Holidays
2	On Holidays, the front door of the Tampa office will be unlocked from 09:00 to 12:00 , Monday through Friday.
3	The Staff will be allowed into the Tampa building between 06:00 thru 21:00, on all days.
4	The Staff will be allowed into the Atlanta location between 06:00 thru 21:00, on all days.
5	Management is always allowed into the Tampa office
6	Management is always allowed into the Tampa elevator, and allowed access to all floors.
7	A subset of the employees will be required to use both their badges and PIN codes to access the Atlanta location.
8	The Request for Exit device will always be enabled
9	For Emergency purposes, the CEO will have a special badge that will place all the exterior doors into the LockDown mode
10	The CEO's office will have a "reset" button, that will reset the system back to it normal condition

## 2: CONFIGURATION EXPLANATIONS:

### 2.1: ADMINISTRATION APPLICATION INTRODUCTION:

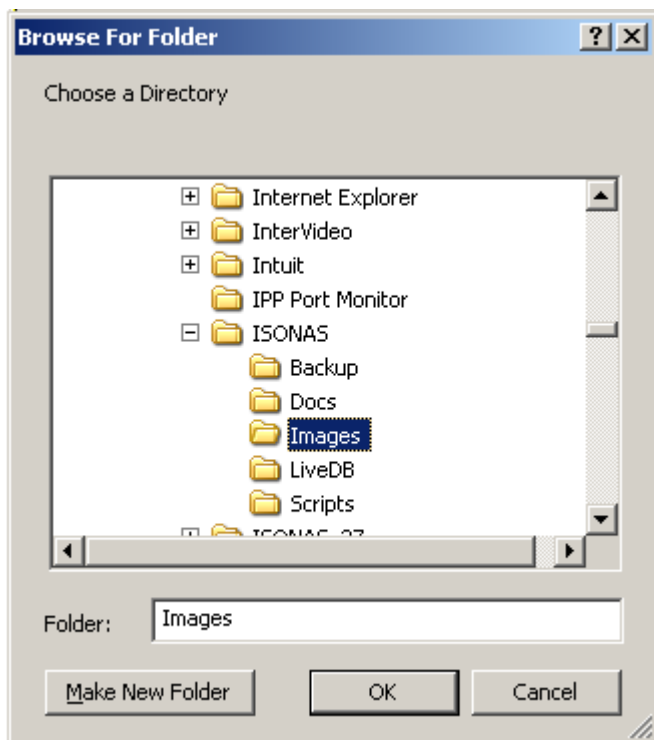
The review of the database will be done using the Crystal Matrix Administration application.

Once you have installed the Crystal Matrix software, you may access this application by navigating:

Windows Start Button → All Program → ISONAS → Crystal Access Administrator

An initialization step should be done to assure that the Crystal Matrix software knows where the images associated with the Sample Database are installed on your workstation.

You can access these windows by navigating (within the Administrator application):  
Main Menu → Files/Reports → Image Directory



You should select the subdirectory Images, which is normally found under  
C: \Program Files\ISONAS\Images

Highlight the Images Directory entry on the list, and click on the "OK" button.

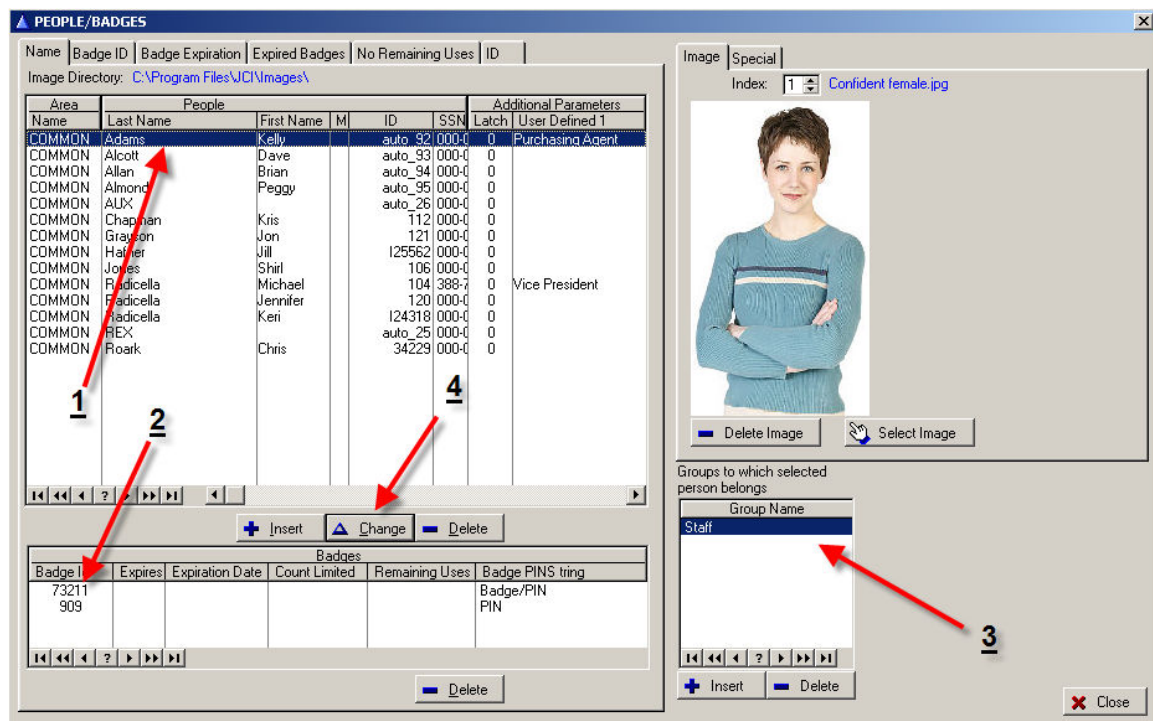
## 2.1.1: PEOPLE (WHO):

You can access these windows by navigating: Main Menu → People → People/Badges



Also, you may use the Tool Bar's People button. This button remembers the last method you used to access the People area, either thru the People Wizard or thru this window

## Kelly Adams



Area	People		Additional Parameters				
Name	Last Name	First Name	M	ID	SSN	Latch	User Defined 1
COMMON	Adams	Kelly		auto_92	000-0	0	Purchasing Agent
COMMON	Alcott	Dave		auto_93	000-0	0	
COMMON	Allan	Brian		auto_94	000-0	0	
COMMON	Almond	Peggy		auto_95	000-0	0	
COMMON	AUX			auto_26	000-0	0	
COMMON	Chapman	Kris		112	000-0	0	
COMMON	Grayson	Jon		121	000-0	0	
COMMON	Hatner	Jill		125562	000-0	0	
COMMON	Jones	Shirl		106	000-0	0	
COMMON	Radicella	Michael		104	388-7	0	Vice President
COMMON	Radicella	Jennifer		120	000-0	0	
COMMON	Radicella	Keri		124318	000-0	0	
COMMON	REX			auto_25	000-0	0	
COMMON	Roark	Chris		34229	000-0	0	

BadgeID	Expires	Expiration Date	Count Limited	Remaining Uses	Badge/PINS tring
73211					Badge/PIN
909					PIN

The first entry in the database is for Kelly Adams (Arrow #1). Items of interest include.

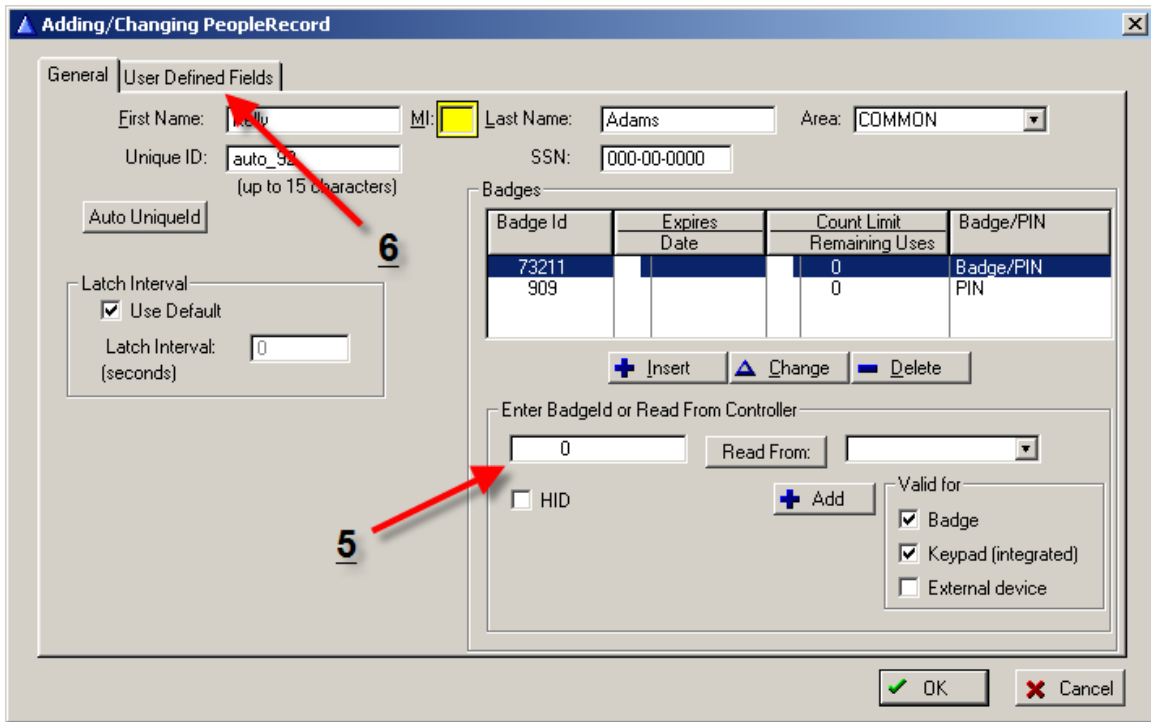
Kelly has both a Proximity Badge and a Keypad PIN assigned to her. (Arrow #2).

Kelly has been assigned to the "Staff" group (Arrow #3)

The photo on-file for Kelly is shown.

By selecting the Change button (Arrow #4), the details window opens.





With this window, Kelly's information can be changed. For example, she could be assigned some additional badges (Arrow #5).

The User Defined Fields tab (Arrow #6) access the view shown below.

Shown is the 'User Defined Fields' for Kelly. The customer has control over both the title of each field (on a system-wide basis), and then the contents of the fields (on a person-by-person basis).

The screenshot shows a dialog box titled "Adding/Changing PeopleRecord" with a close button (X) in the top right corner. It has two tabs: "General" and "User Defined Fields", with the latter being the active tab. The "User Defined Fields" section contains a list of fields with their titles and values, and a set of empty input boxes for each field. The fields are:

Field Name	Value	Input Box
Title	Purchasing Agent	<input type="text"/>
Security Clearance	Top Secret	<input type="text"/>
Dept	Admin	<input type="text"/>
Hire Date	5/12/2006	<input type="text"/>
Hair Color	Brown	<input type="text"/>
Eye Color	Blue	<input type="text"/>
		<input type="text"/>
		<input type="text"/>
		<input type="text"/>
		<input type="text"/>

At the bottom right of the dialog box, there are two buttons: "OK" (with a green checkmark icon) and "Cancel" (with a red X icon).

## Dave Alcott

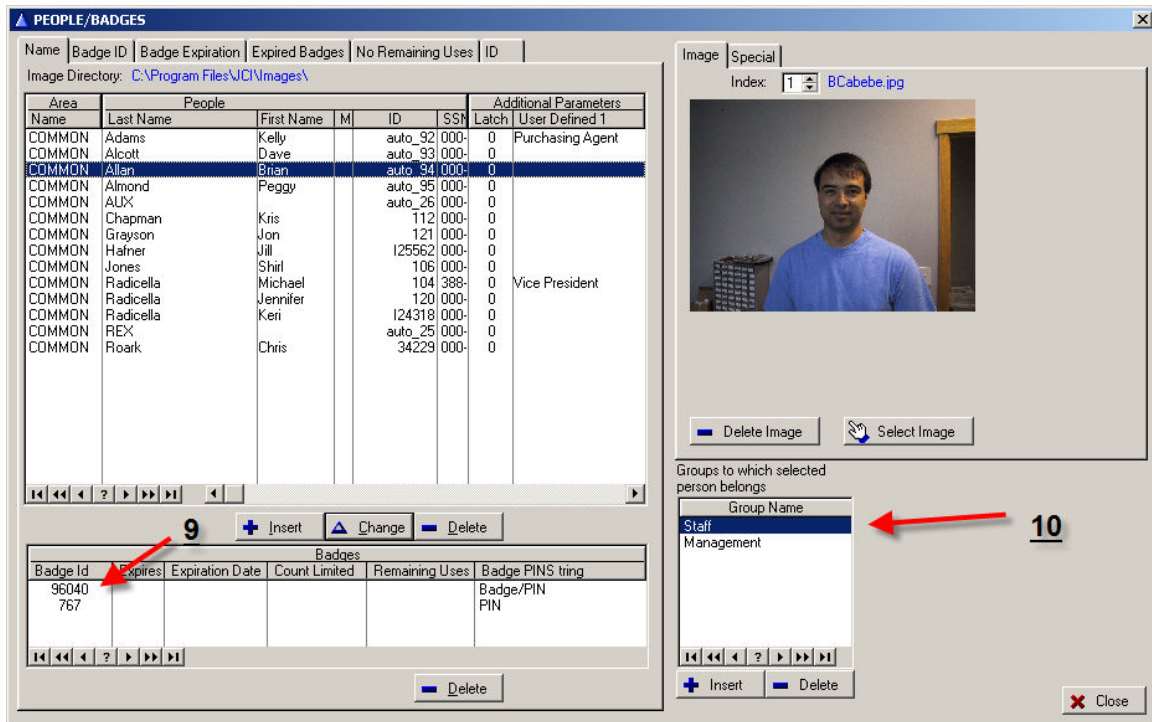
The screenshot shows the 'PEOPLE/BADGES' application window. The main table lists people with columns for Name, Last Name, First Name, M, ID, SSN, Latch, and User Defined 1. The second entry is Dave Alcott. Below this is a 'Badges' table with columns for Badge Id, Expires, Expiration Date, Count Limited, Remaining Uses, and Badge/PINS tring. The first badge entry is 6553778 with PIN 777. On the right, the 'Special' tab is active, showing a table with columns for Door, Name, Ctr Alm, Unik, TTL1, and TTL2. The first row shows 'Atlanta\_Front' with a 'Toggle Authority' badge. Below this is a list of 'Groups to which selected person belongs' with 'DualAuth' selected. Red arrows labeled '7' and '8' point to these specific elements.

The 2nd entry in the People database is for Dave Alcott. Items of interest include.

Dave has one badge that has been given "Toggle Authority" (Arrow #7). When Dave presents this badge to the specified door (Atlanta\_Front), the door unlocks and stays unlocked. When Dave presents this badge a 2<sup>nd</sup> time, then the door will re-lock. The system would also require a valid Permission be defined to authorize Dave to enter the Atlanta\_Front door.

Please note that Dave is assigned to a group called DualAuth (Arrow #8). This group will be discussed when the Permission's window's functionality is covered.

# Brian Allen



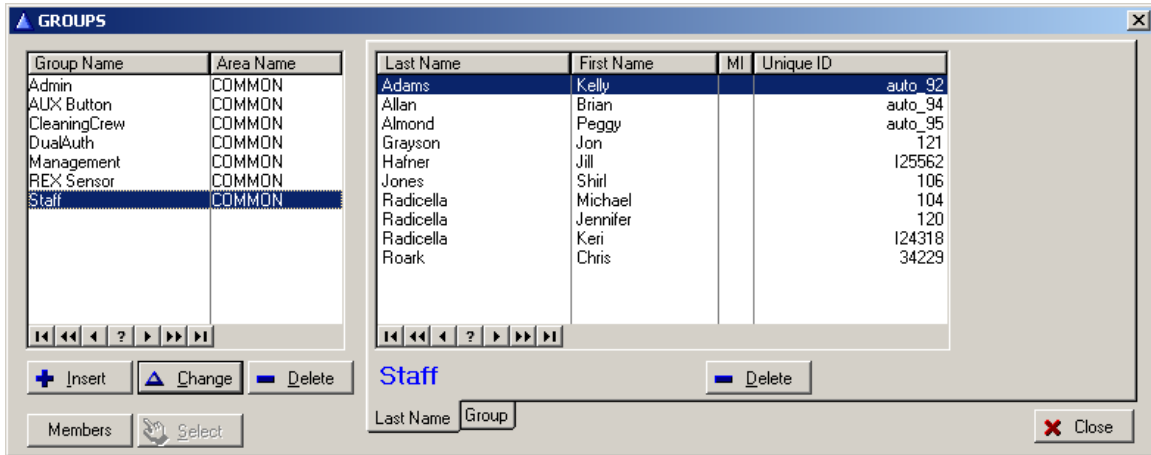
The 3rd entry in the database is for Brian Allen. Items of interest include.

Brian has both a Proximity Badge and a Keypad PIN assigned to him. (Arrow #9). Again, demonstrating that a single user can have multiple credentials assigned. A user might have a credential in their wallet, another on their key-chain, one that can be used to toggle the front door into and out-of unlock mode, and another attached to their car's windshield for access to the parking garage.

Brian has been assigned to two groups, Staff and Management (Arrow #10). He would inherit a super-set of both groups' rights to enter the facility.

## Groups

You can access these windows by navigating: Main Menu → People → People/Badges



This window allows you to review the Groups that have been defined in the system

When a Group is selected in the list on the left, then the people who are assigned to that group are displayed in the list on the right.

## 2.1.2: SHIFTS AND HOLIDAYS (WHEN):

You can access these windows by navigating: Main Menu → Calendar → Shifts



Also, you may use the Tool Bar's Shift button

Shift			Sunday		Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
Name	Area Name	Type	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
Always	COMMON	Both	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59	0:00	23:59
Business_Hours	COMMON	Normal	0:00	0:00	9:00	17:00	9:00	17:00	9:00	17:00	9:00	17:00	9:00	17:00	0:00	0:00
Business_Holiday	COMMON	Holiday	0:00	23:59	9:00	12:00	9:00	12:00	9:00	12:00	9:00	12:00	9:00	12:00	0:00	23:59
Cleaning	COMMON	Normal	0:00	23:59	0:00	23:59	21:00	23:59	0:00	23:59	21:00	23:59	0:00	23:59	0:00	23:59
Employee_Hours	COMMON	Both	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00	6:00	21:00

If you double-click on a Shift, a detail window appears, where changes can be made.

The Sample database's Shifts are defined as.

Shift Name	Description
Always	Valid 24 hours a day, 7 days a week
Business Hours	Times when the business's doors are open to the public
Business Holiday	On a Holiday, the times when the business's doors are open to the public
Cleaning	Time when the Cleaning Crew is allowed

Shift Name	Description
Employee_Hours	into the building  Times when the bulk of the employees are allowed into the building.

### 2.1.3: NETWORK:

You can access these windows by navigating: Main Menu → Network → View Network



Also, you can access this window thru the Tool Bar's Network button

The Network view displays information on the topology of the network of reader-controllers that are part of the ISONAS system.

It displays which CSUP is servicing which reader-controllers. Also displayed is the IP address of each reader-controller.

The screenshot shows the 'Network' window with a tree view of the Controller Network. The tree view includes Atlanta\_CSUP (01 Port: 7071) and Tampa\_CSUP (02 Port: 7072). Atlanta\_CSUP is selected, and its status is 'Running'. The right pane shows 'Atlanta\_CSUP 01' status, including 'Active Controllers: 1 of 1' and 'I/O Supervisors: 0 of 0'. A legend on the right shows 'Controller Mode/Status' with options like Normal, Unlocked, Lockdown, Emergency/Inactive, Disabled/Standalone, Local, and Unknown. Red arrows labeled 11 and 12 point to specific entries in the tree view.

There is one CSUP supporting the Atlanta office's door (Arrow #11) and another CSUP supporting the seven doors at the Tampa location (Arrow #12).

Since the Atlanta\_CSUP has been selected, detailed information from that CSUP is displayed on the right side of the screen.

If you double-click on an item in the Network list, then the details window for that item appears. Double-click on a door to see the selection of options available for a single reader-controller.

### 2.1.4: DOORS & DOOR GROUPS (WHERE):

You can access these windows by navigating: Main Menu → Doors → Door Groups and Doors



Also, you can access this window thru the Tool Bar's Doors button

Door			Supervisor			
Name	Model	Area	Name	ID	Connection	ID
Atlanta_Front	RC-01	COMMON	Atlanta_CSUP	01	192.168.1.100	1
Tampa_Accounting	RC-01	COMMON	Tampa_CSUP	02	192.168.0.105	1
Tampa_BackDoor	RC-01	COMMON	Tampa_CSUP	02	192.168.0.100	1
Tampa_CEO	RC-01	COMMON	Tampa_CSUP	02	192.168.0.104	1
Tampa_Computer	RC-01	COMMON	Tampa_CSUP	02	192.168.0.103	1
Tampa_Elevator	RC-01	COMMON	Tampa_CSUP	02	192.168.0.106	1
Tampa_FrontDoor	RC-01	COMMON	Tampa_CSUP	02	192.168.0.101	1
Tampa_Shop	RC-01	COMMON	Tampa_CSUP	02	192.168.0.102	1

This shows Doors (Arrow #14) that have been defined.

Also shown are the Door Groups and which Door belongs to which Door Group (Arrow #13).

Note that a single Door (Tampa\_Backdoor) is allowed to belong to multiple Door Groups (Tampa\_AllDoors & Tampa\_Exterior)



## 2.1.5: PERMISSIONS (BUSINESS RULES):

You can access these windows by navigating: Main Menu → Rights → Permissions



Also, you may use the Tool Bar's Permissions button. This button remembers the last method you used to access the Permissions area, either thru the Permissions Wizard or this window

Explanation of Door Modes  
 Normal - Group members can open the door during the shift  
 UNLOCKED (Automatic) - Door unlocks automatically at start of shift  
 UNLOCKED (Badge) - Door remains unlocked after a valid badge is presented  
 LOCKDOWN - Door is locked down during shift - supersedes other permissions

**Permissions Table**

Door Mode	Group Name	Shift Name	Door	I/O Profile	Applies To	Du Au
UNLOCKED Autom***		Business_Holiday	Tampa_FrontDoor		Network	
UNLOCKED Autom***		Business_Hours	GROUP(Tampa_Exterior		Network	
Normal	DualAuth	Always	Atlanta_Front		Both	✓
Normal	Management	Always	GROUP(Tampa_AllDoors		Network	
Normal	Management	Always	Tampa_Elevator	Mgmt	Network	
Normal	REX Sensor	Always	Atlanta_Front		Both	
Normal	Staff	Employee_Hours	Atlanta_Front		Both	
Normal	Staff	Employee_Hours	GROUP(Tampa_Exterior		Network	

Group: Admin  
 Shift: Always  
 Door: Atlanta\_Front

Buttons: Insert New Permission, Full, Incremental, Log, NetStat, Close

The sample database included a number of permissions. These are built from the "building blocks" that were previously described. The table shown next describes these permissions.

## Permission Descriptions

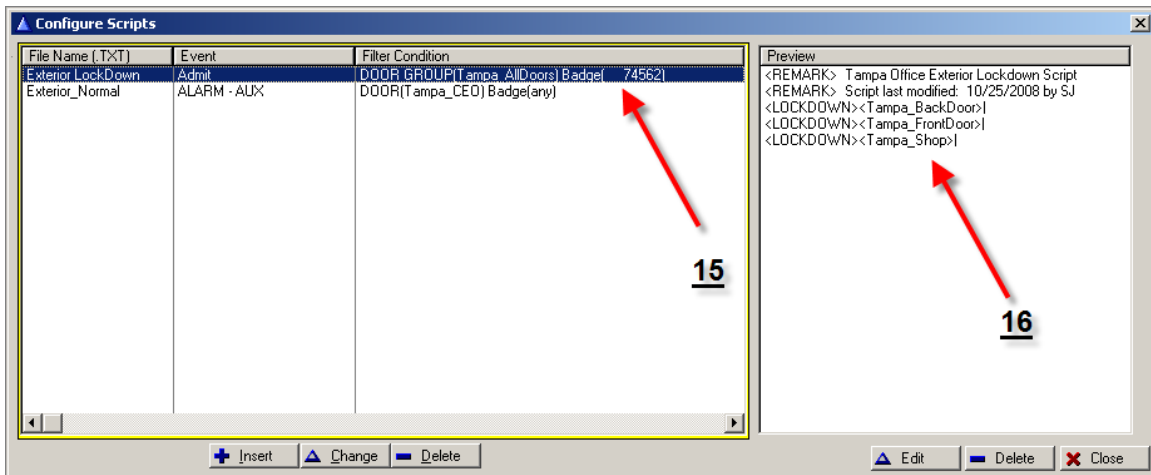
Group	Shift	Door/Door Group	Description
***	Business Holiday	Tampa_Front	On a Holiday, unlock the Front Door, between 09:00 and 12:00
***	Business Hours	Tampa Exterior	On a non-holiday, unlock the exterior doors, between 09:00 and 17:00
DualAuth	Always	Atlanta_Front	Allow members of the DualAuth group to open the Atlanta_front door, but require that two valid credentials to be presented before the door is unlocked.
Management	Always	Tampa_AllDoors	Allow members of the management group into all doors in the Tampa location
Management	Always	Tampa_Elevator	Allow members of the management group access to the Tampa elevator. To enable access to the proper floors, the Mgmt IO Profile is specified.
RexSensor	Always	Atlanta_Front	Enable the REX button on the Atlanta_Front door.
Staff	Employee_Hours	Atlanta_Front	Allow the Staff into the Atlanta location
Staff	Employee_Hours	Tampa_Exterior	Allow the Staff into the Tampa location's exterior doors.



## 2.2: ADDITIONAL FEATURES:

### 2.2.1: SCRIPTING:

You can access these windows by navigating: Main Menu → Scripts → Configure

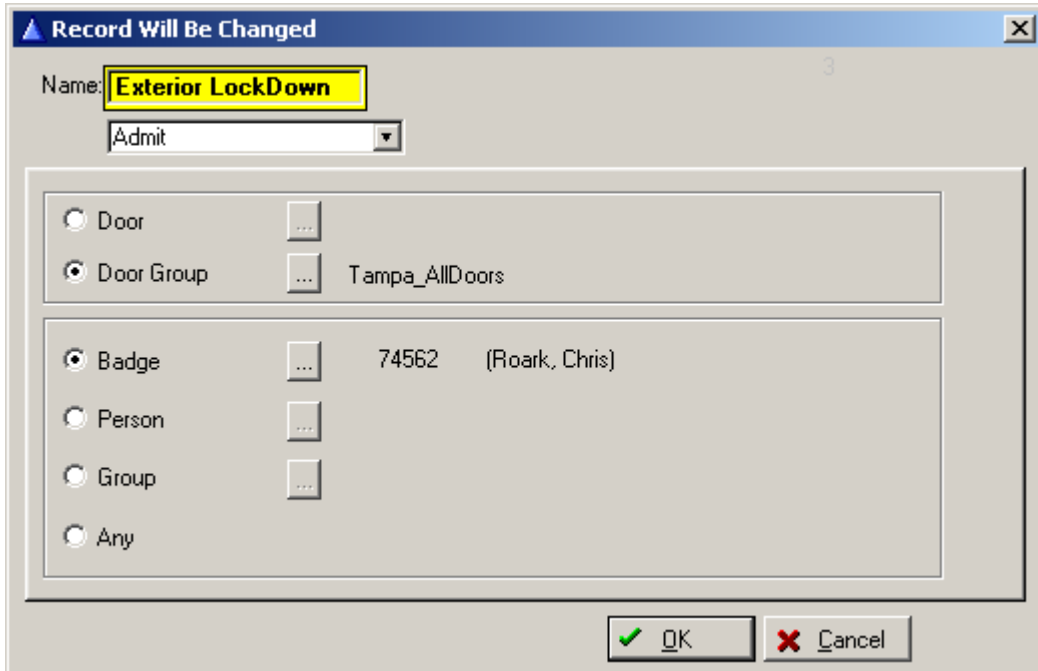


Two scripts are specified. ExteriorLockDown and Exterior\_Normal

When run, the ExteriorLockDown script (Arrow #16) places three doors in the "LockDown" state. While a door is in the Lockdown state, the door will lock, and refuse entry to normal cards. Special "Master Cards" will still be allowed entry.

The Exterior\_Normal script is activated when a button in the CEO's office is pushed, and returns those three doors to their normal condition. This button is connected to the "Aux" input lead of the reader-controller at the CEO's office.

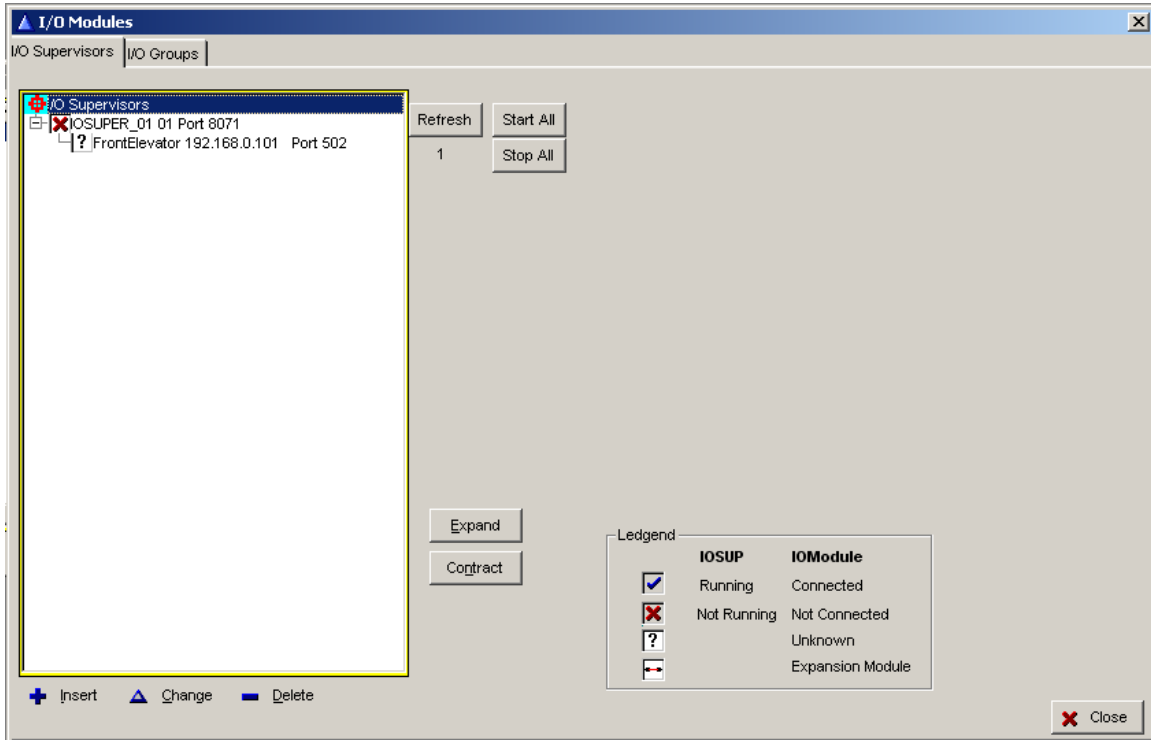
Double-click on the "ExteriorLockDown" script entry (Arrow #15) and the detail window appears. The "ExteriorLockDown" script activates when a specific card belonging to Chris Roark is admitted into any door in the Tampa\_AllDoors group.



## 2.2.2: ELEVATOR CONTROL (DIGITAL INPUT/OUTPUT):

You can access these windows by navigating: Main Menu → I/O Modules

The Tampa office has an elevator. A single digital I/O module is used to enable the access control system to interface with the elevator.



The Communications settings are shown in the window above.

Note that the I/O Module is shown with an IP address of 192.168.0.101

Double-clicking on the I/O Module, shows the detail information, where you can name each floor (output point).

**I/O Module Will Be Changed**

Name: FrontElevator Connection: 192.168.0.101 Port: 502 Unit: 1

Input Points: 2 Log Alarm Input Address: 0 Log Alarm

AlarmButton	T	T
StopButton	T	T

Output Points: 6 Output Address: 0

- Parking 2nd
- Parking 1st
- Lobby
- 2nd Floor
- 3rd Floor
- Executive

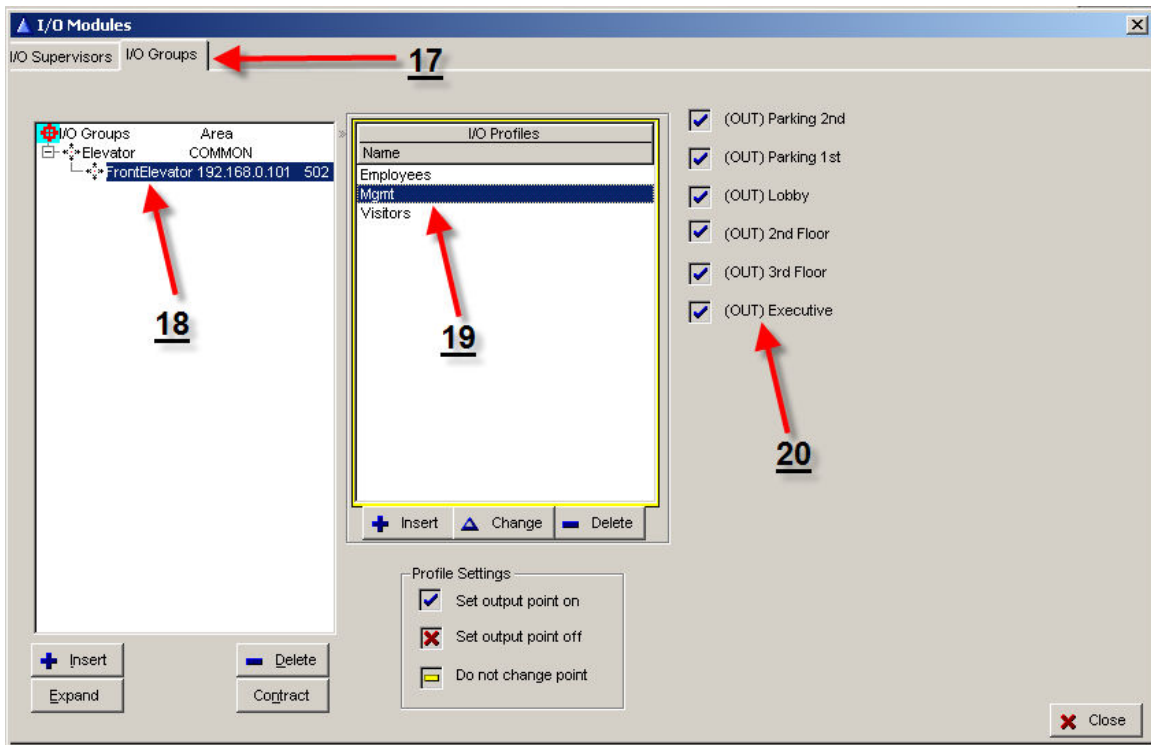
Polling Interval (.01 seconds): 100

Reset Interval: 3

Log (to event history) and Alarm settings: N - none T - on True F - on False B - on Both

OK Cancel

The configuration to enable the Mgmt I/O Profile to access all floors on this elevator is shown below.



To access this view, select the I/O Group Tab (Arrow #17). To use this window, you select an I/O module (Arrow #18), select an I/O Profile (Arrow #19), and then select/deselect the floors to allow access to (Arrow #20).

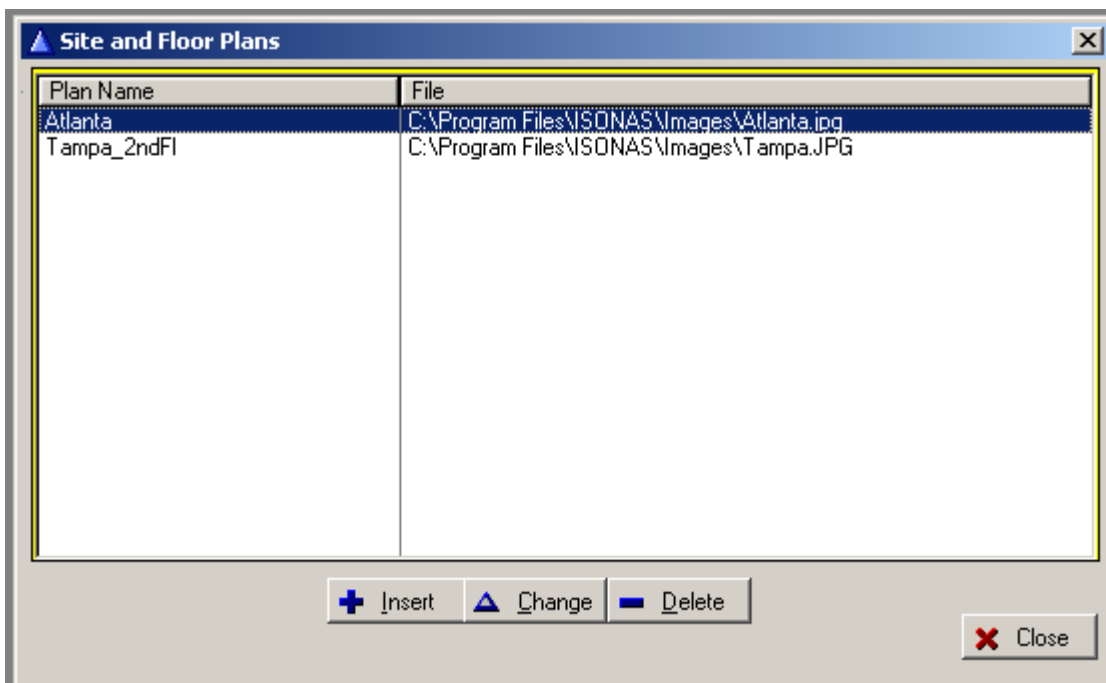


### 2.2.3: FLOOR PLANS AND DOOR IMAGES:

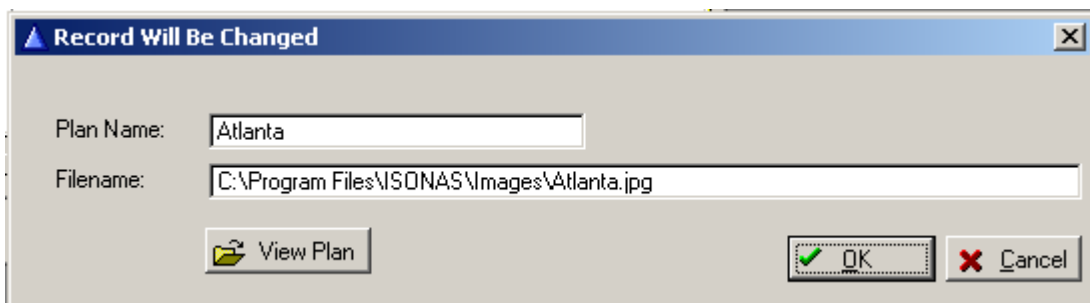
Floor Plans and Door Images are features that can be used to make the access system easier to use. They are used to graphically display the system's current status in the Monitor Application

**Floor Plans** can be used to graphically show the current state of the doors within a facility. You can access these windows by navigating: Main Menu → Doors → Floor/Site Plans

A list of the defined floor plans appears.



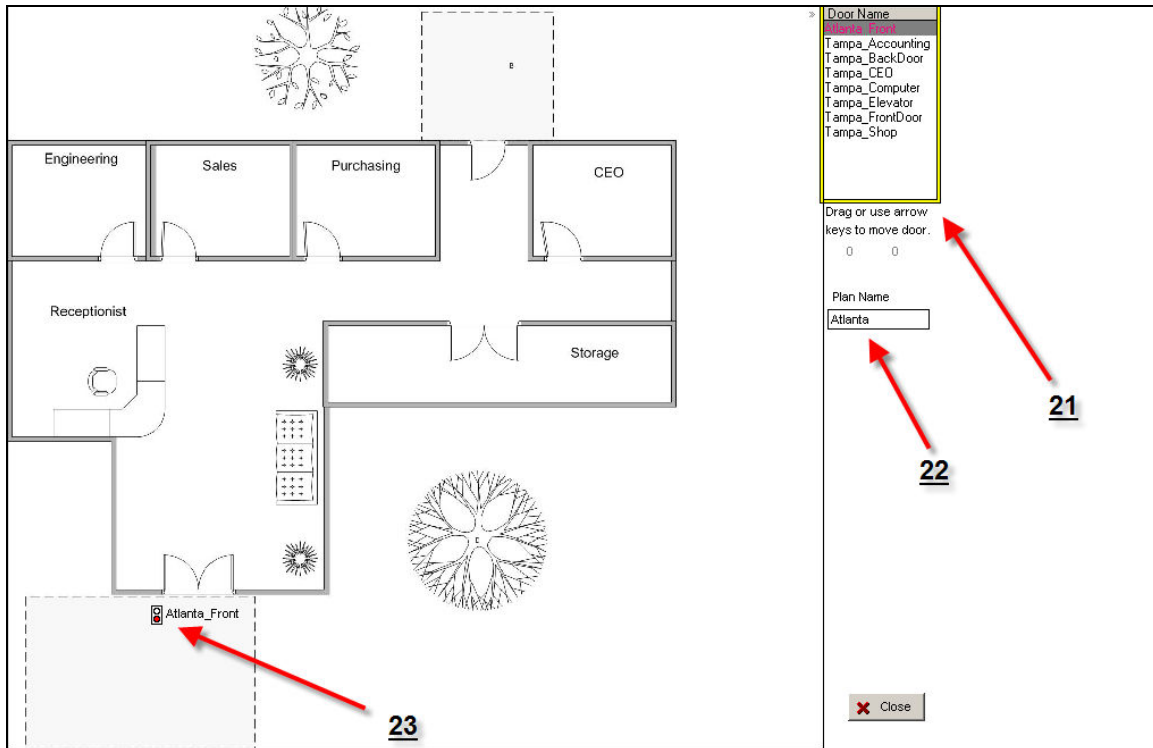
Double-clicking on the Atlanta Plan, the plan name and the plan's background graphic file is displayed.



Click on "View Plan" and the Plan appears.

You may Drag&Drop the site's doors from the door list (Arrow #21) onto the proper location on the floor plan (Arrow #23).

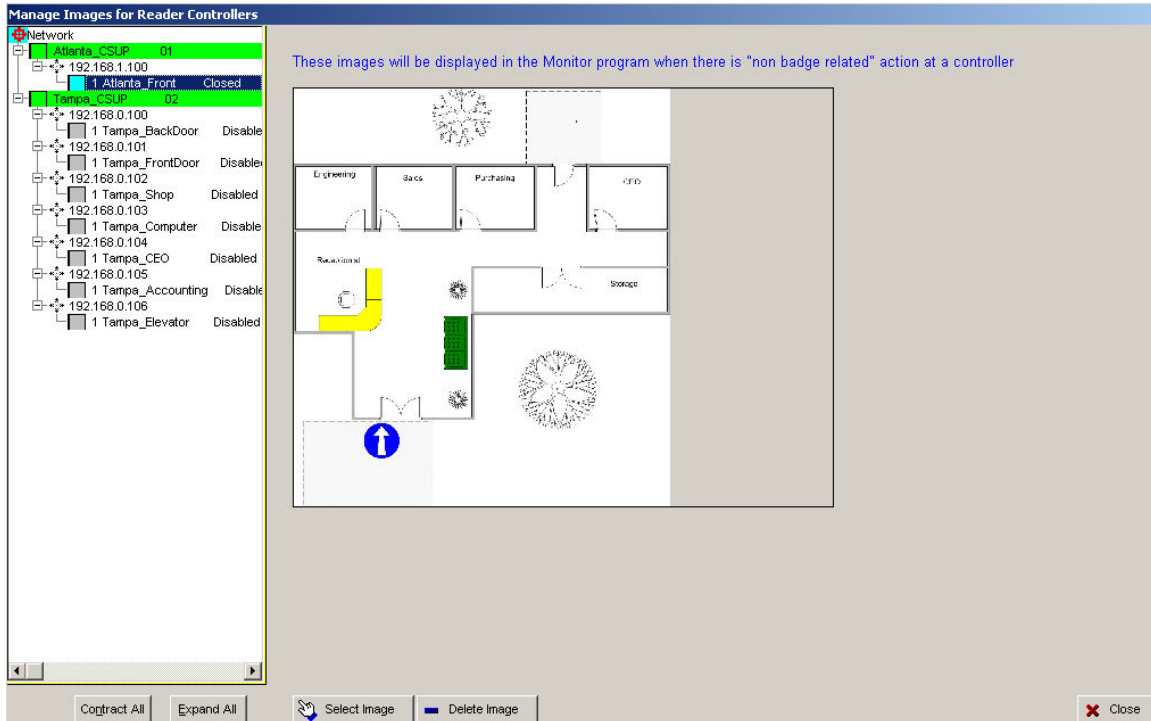
The Plan's name is also defined on this screen (Arrow #22)



The Plan's name is also defined on this screen (Arrow #22)

**Door Images** are displayed on the Monitor application, when an event occurs at a door, and that event does not involve a credential. An example would be a door which has been propped open for too long.

You can access these windows by navigating: Main Menu → Doors → Door Images



The image might be a floor plan, with the specific door highlighted (as shown), or a photo of the door.

### 3: EXAMPLE DEMO SCRIPT:

Below is an example script that covers the highlights of the ISONAS system. It assumes that you are explaining the ISONAS system's functionality by using a single reader-controller and the Sample Database.

1. Basic Crystal Software walk-thru
  - a. Goal: Review a simple configuration set-up, to get a feel for the overall process.
  - b. Where
    - i. Network View
    - ii. Focus on (Atlanta\_FrontDoor)
  - c. When
    - i. Shifts
    - ii. Focus on (Employee Hours)
  - d. Who
    - i. People (Kelly Adams)
      1. Multiple-badges
      2. Change Record window
        - a. Badges Area
    - ii. Groups (Staff)
  - e. Rules
    - i. Permissions ( Normal-Staff-EmployeeHours-Atlanta\_FrontDoor-Both)
    - ii. Implement the Rules (Compile)
2. Monitor Review
  - a. History Window
    - i. History Report (Main Menu → View → Filtered History)
  - b. Controlling doors
  - c. Alarms
  - d. Floor Plans

### 3. More Crystal Software Features

(The need for covering the topics in this section depends on level of interest of target audience. Sometimes it is better to stop the demo at this point, and open the discussion up to questions).

#### a. Navigation

- i. Wizards
- ii. Tool Bar

#### b. Additional Configuration Options

##### i. When (expanded)

1. Business Hours
2. Business Hours, Holiday
3. Always (both)

##### ii. Where (expanded)

1. Door Groups
2. Floor Plans
3. Door Images

##### iii. Who (expanded)

1. Multiple Groups (Brian Allan)
2. Multiple Badges
3. User defined fields

##### iv. Permissions

1. Mgmt – Always -- Tampa\_All Doors
2. Staff – Employee Hours – AtlantaFront
3. Dual Auth – Always – AtlantaFront
4. Unlock automatic
  - a. Normal Day and Holiday

#### c. Scripting

- i. Lockdown
- ii. Normal

#### d. Reports

**For more information:**

**Web:** [www.isonas.com](http://www.isonas.com)      **E-mail:** [sales@isonas.com](mailto:sales@isonas.com)

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