Programming Manual

Logic +Adhan (Islamic Prayer time)

V2.2

Created By Sameh

Contents

Before you begin this course

Before you begin this course, you should have:
• Understand the basic bus Diagram Connection Topology
• Understand the Lighting and HVAC Connections Diagram
• Basic Knowledge about IP setting. (please see 2-2)
• Basic Knowledge of using Windows operating system.
• Basic Knowledge of using Windows Painter.

Prerequisites

Either
• Products overview course.
• Installation Course.

How this course is organized

Lighting and HVAC P rogramming Guide C ourse Organized in Simple way of

Product overview, Example Picture, (Notices) , (Advices),

(Example) .

For Training Course Request Please apply online
www.smarthomebus.com

1- <u>Introduction</u>

Welcome to S-BUS manual Programming Guide, you are now a Beginner Programmer who well know soon how the S-bus Programming is simple.

1-1   Objective:

After this course you will be able to program the Lights Dimmers ad relays with the switches Panel, Program curtain shades control, program the Air condition setting and DDP panel, create and download different Picture on the LCD, and start with Motion sensor and Automate your Project and many more…

1-2   S-Bus products:

S-BUS Products is vary with its powerful and multi functions, it have the high power dimmer and relay, Curtain, DMX and LED controller, Wall switches and Dynamic Display Panel "DDP", HVAC2 Air condition control and different type of sensors, like Motion sensor, light intensity sensor, Ultrasonic sensor, Dry input sensor, Analog input, current sensor, Power meter, Infrared receivers and transmitter, Security and Automation, Audio Module, Rs232, Programming and integrations Module

2- <u>Start Programming</u>

In smart home G4 there are two ways For Programming:

- Manual Way (For Basic Programming).
- Pc /Laptop Way (For Basic and Advanced Programming).

2-1 <u>S-Bus Programming Software overview</u>

You need on this lesson: to have your computer with you. Running on windows Operating system, Smart Cloud **G4** software, Programming port SB-DN-1IP, that enable you to search for all the devices that connected to the bus network.

1- Install your S-bus configuration software in your Computer by pressing   the **Setup** icon and follow the installation steps windows

2- Plug in your Ethernet cable (Rj45) in your pc and the other end in the **RSIP** module or **Zaduio** module then **Set** your computer IP Address, for example

IP   192.168.**10**.115
Subnet   255.255.255.0
Getaway   192.168.**10**.1

⚠️ The default address for S-bus Product is **192.168.10.xxx**
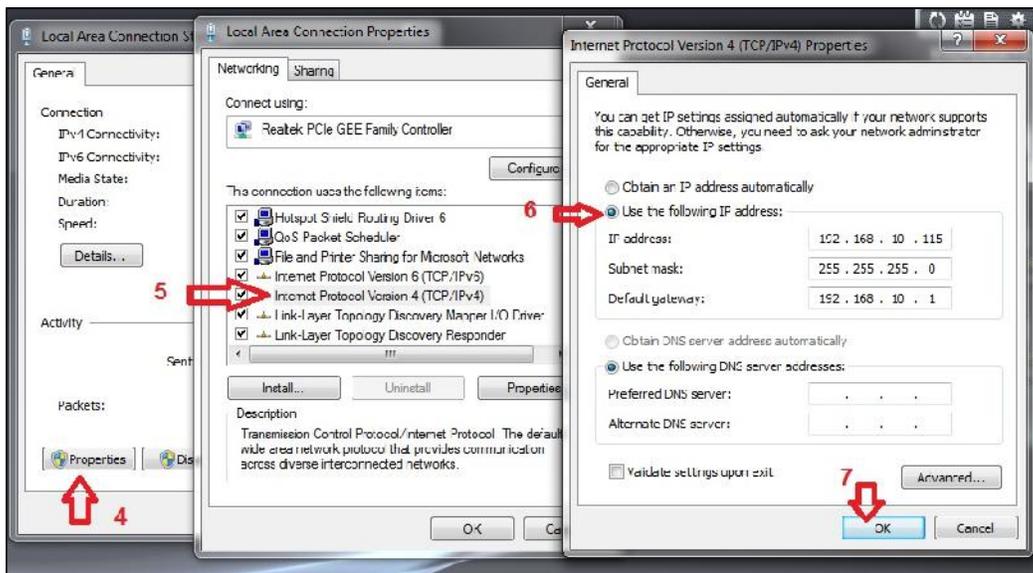
3- Run your S-bus smart cloud Software

4- The Password window will open, type the default password is **user**
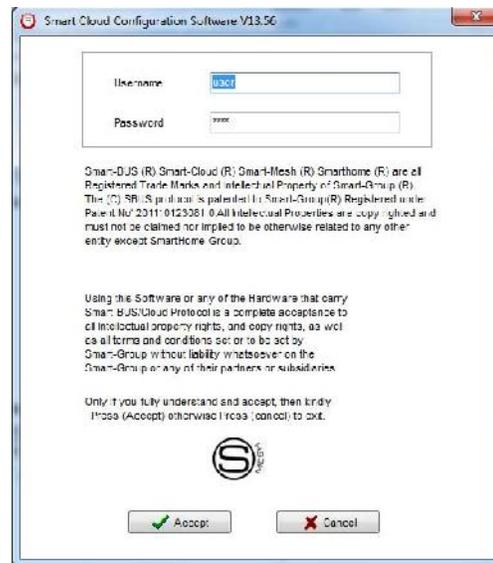
5- Your software will start
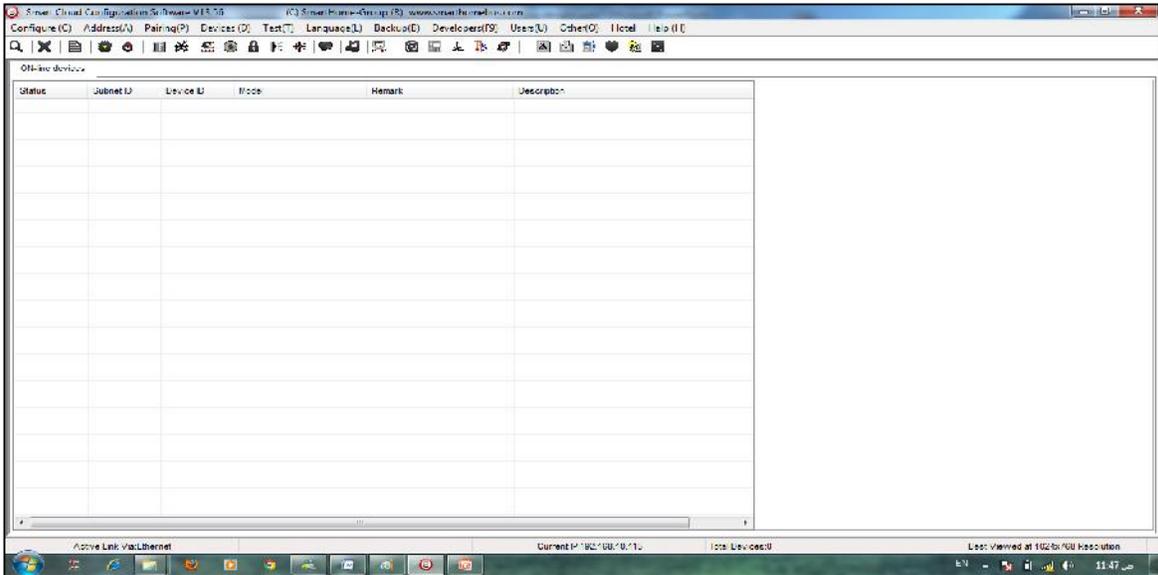
6- You can see your current IP on the footer of the software as 192.168.**10**.115 then your IP setting is ok.
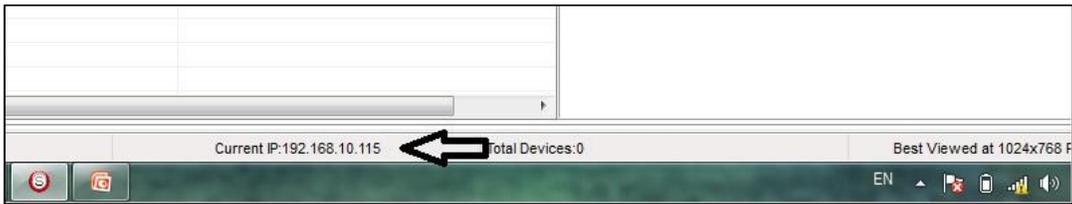
⚠️ *Set your computer IP setting before starting the S-BUS Smart Cloud.*

⚠️ *You should always reset your Module every time you change the IP Address in order the new setting to be Active.*

After you set your Module IP Address now you should connect the module to Your Computer Network in order to communicate. The connection can be in two ways

1- Connect the 1Port IP/RSIP Module to the HUB or Data Switch and connect your Computer to the same data Switch as standard straight cable Network wiring.

2-   Without using the HUB or data switch you can use the cross cable to connect your computer directly to the IP Module, see the next cross wiring diagram of TIA/EIA 568B crossed wiring

TIA/EIA 568B Crossed Wiring
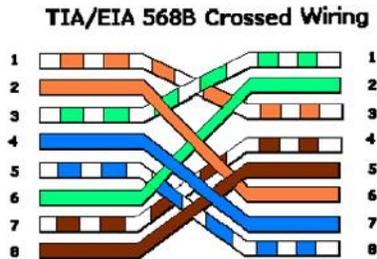
*You can use the Line command **Ping** to check your connection.*
On your Computer, Go to start/ Run/ CMD then type Ping 192.168.10.xxx
*If you see the following results similar to this Picture then your connection is successful*

Always the Programmer should carry with his programming kit the cross cable for programming without needs of the Data Switch or HUB.

## 2-2 S-bus Smart cloud Software basic setting

Configure
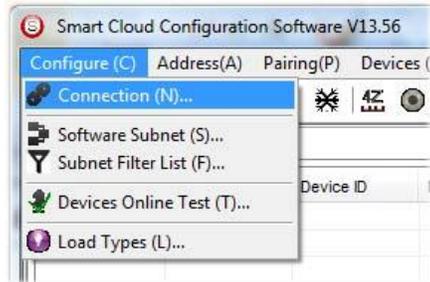
- **1** - *Connection*

You can change between Ethernet Connection and Serial Port connection,

 the Serial Port connection is old, slow and no longer use. Always Keep the setting on Ethernet connection
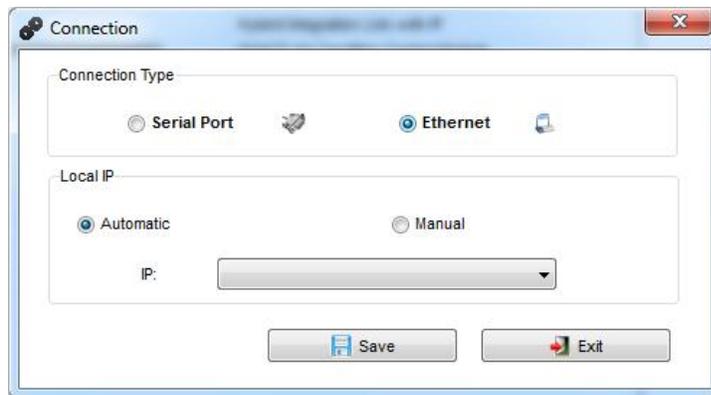
Also you can choose between **obtain Local IP Automatically** (Default) ，
or to **input local IP Manually**.

 Input local IP manually you can use it for example, if you are using in your laptop or computer Wireless and wired Network with different IP setting, and you want to choose the right one of it for programming, and don't want your S-bus software to detect your other IP address Automatically.

9

- **2**- *Software   Subnet ID*

The S-bus configuration software have fixed Device ID (254), but you can change its subnet ID only, the default software subnet is (Default = 254)

⚠️ *The software default subnet ID address is 254, Device ID 254, this address must be <u>unique</u>, in case other Device has the same address you will not be able to find that Device unless you change the Subnet of the software.*

- **3**- *Subnet Filter List:*

Here you can filter your subnet ID's that mean you can add more ranges if you have more than 254 devicess so you can add another subnet ID

- **4**- *Devices On-Line* test

You can Deactivate or activate the auto test of Online devices (Activate is Default).

- **5**- *Load type*

You can add some Remarks to your Load type to use it as reference and print it out later on the excel sheet.

<u>Address</u>

Here you can search for the Device Addresses and load the Network and solve any conflict in the address. (For more Information see 3-2)

<u>Pairing</u>

You can enable pairing or disable either for one device or for all devices, disable meaning you can't program S-bus modules in manual anymore until you enable it again.

<u>Devices</u>

You can go here directly to Devices setting Categorized by type

<u>Test</u>

This is important Function to check your Lights Circuit by flashing the lights ON/OFF and then you can give it name (for more information see 3-3 section).

<u>Language</u>

You can change the Language between English and Chinese, and other Languages

<u>Backup</u>

Important to backup and restore your Devices address and setting.

- For Backup: put the subnet and device ID for desire device , choose the location for the backup file then click "Start backup" ,
- For Restore: put the subnet and device ID for desire device, choose the backup which you already made then click "Restore".
-
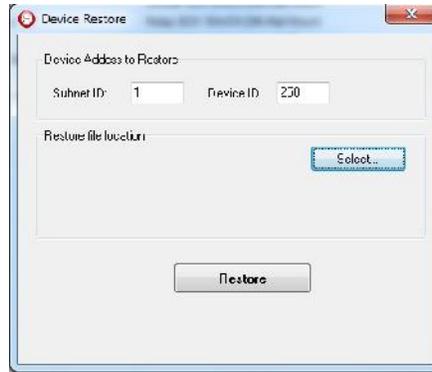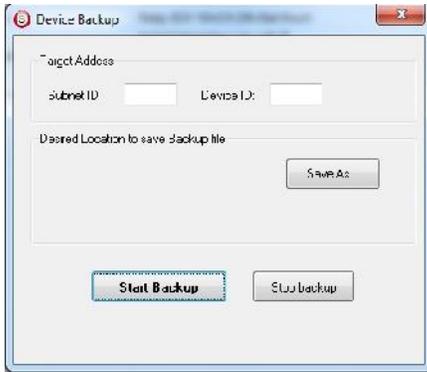
2-3 Devices address and Search:

Each of S-bus Devices must have its own Address in the Network, the Address for each Device consist of 2 parts:

- ❖ **Subnet ID**
- ❖ **Device ID**

The subnet ID can be from 0 – 254

And the Device ID can be from 1 – 254

So you can put up to 65024 Deferent Devices in the same network with deferent subnet and device ID Address

For example one of Dimmer Module Address is (Subnet 1, Device ID 5)

There is 5 ways to Search for the Devices in the Smart cloud Software

1- Fast Search

2- Advanced   Search

3- Manually   Search

4- Broadcast   Address Device Search

5- Solve Conflict address search

Fast Search

The Fast search is very useful tools to test your communication and search your devices Fast , the Fast search take around 2-15 seconds to finish load the devices information in your network.

- Click on the **Scan** button
- Click on the **Fast search Button**
- Click **add all**
- Click **Exit** to exit the Window
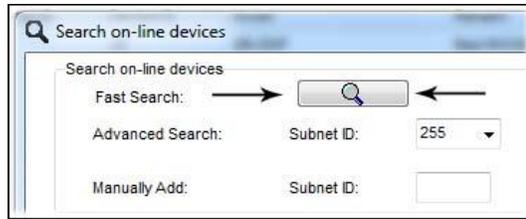
⚠️ *Fast search can't load all the Network Devices, it is only load part of the devices, it is only good for small project that contain around 10 devices, and to check the network communication with your PC.*

Advanced Search

The Advanced Search is a powerful tool for searching your Devices in the network. You can set the Subnet ID you like to search on it and select the range of device ID you want to search for.
Advanced search take 0.3 seconds for each device to load and total of 80 seconds to finish the search and load for 255 devices totally in each subnet.

- Click on the Online Search button 🔍
- Go to **advanced search** , put the subnet ID and the range of device ID search
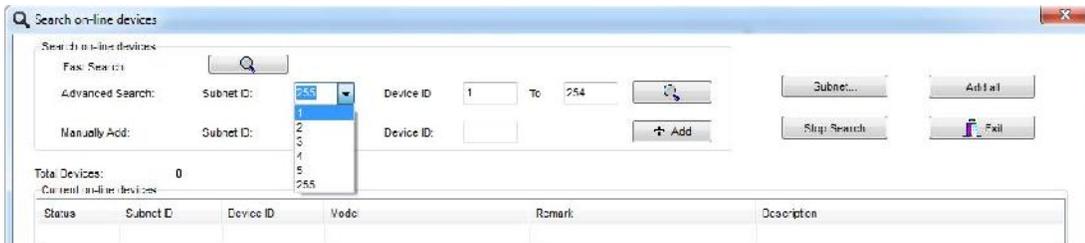
- Click **search ICON**
- Click **ADD ALL** after the search finish
- Click **Exit** to exit from the window
- click **stop** to stop the search
- Click **subnet** to add new subnet to the popup Menu subnet list

🤖 *Use the Advanced Search Always as your standard way to Load the Devices in the Network to your computer before you program in any new project.*

Manual Search

Manual Search is a very fast and useful way to add known Device ID and subnet to your network


- Type the subnet and device ID that you know
- Click ADD
- Exit the Menu

Broadcast Address Device Search

This tool is important when you add new devices or you start your new Project installation, many devices could have the same Address or the communication is not yet tested, this tool is important to check the communication between your device and the bus network and to change its initial address in the first time installation.
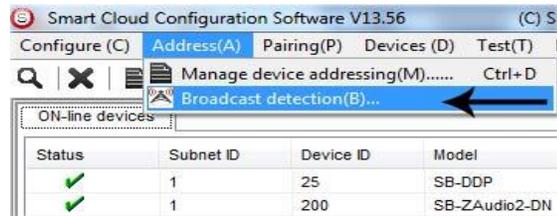
- On your software Click **Address** then **broadcast detection**
- Go to your device like Dimmer / Relay / sensor or Panel and keep pressing the **broadcast Address button** for 2 ~ 4seconds until the button LED color change to **RED**.
- In your software in the Broadcast Detection window click the **Detect Address** Button.
- Your Device ID and Subnet well appear automatically
- To change the address just type the new subnet ID or device ID you want then click **Save Address**
- Click **ADD to online device list** to load your device in the Devices Network List.
- Click **Exit** to Close the Window

13
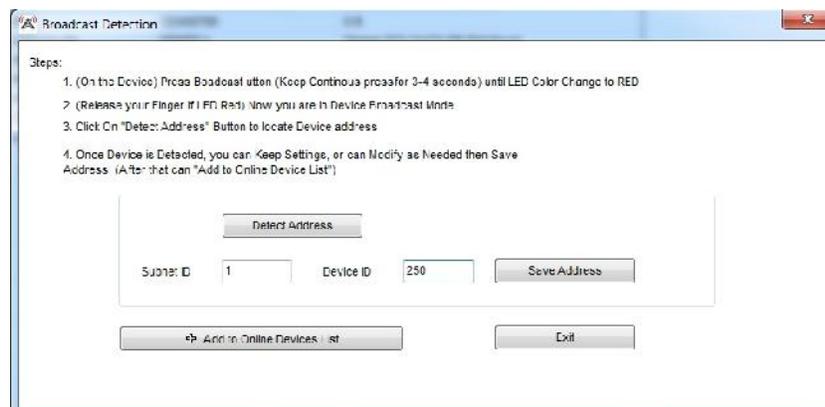
⚡ Solve Conflict address search

This type of search used to solve the conflict address, for example if 2 devices have the same address, then you can easily change the address of it without the need of disconnecting its wires from the network.

- Click **Address** or click the Address Shortcut icon 📄
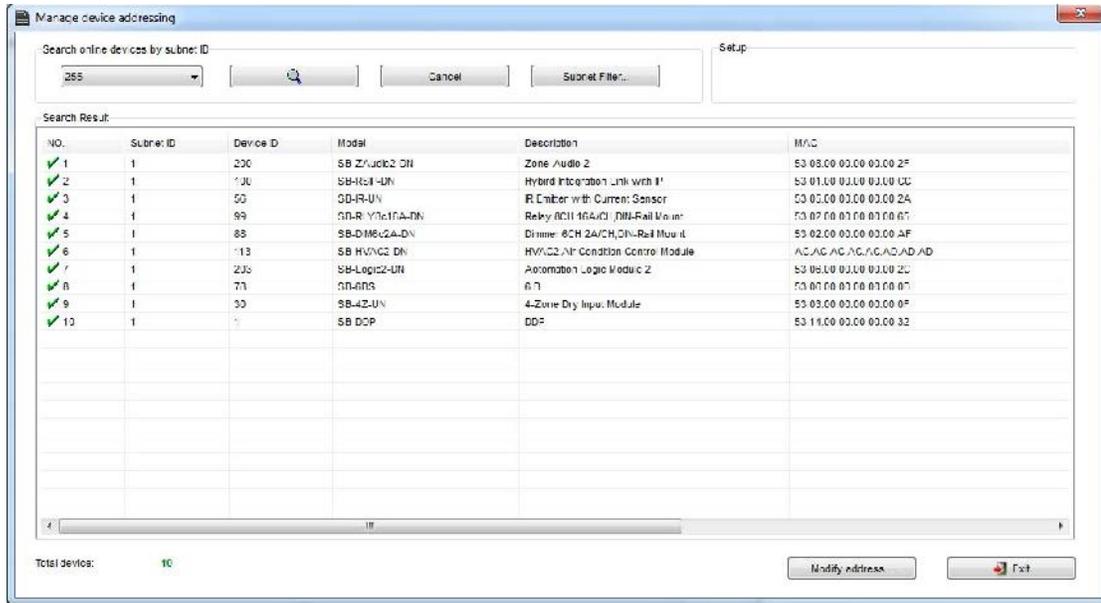
- Select Subnet **255 (recommended)** or any desired subnet then click the search icon.
- Select the device you want to modify its address then click **modify Address** or double click on
  it
- New window will open, and then type the new Subnet ID and Device ID, then Click **Save**

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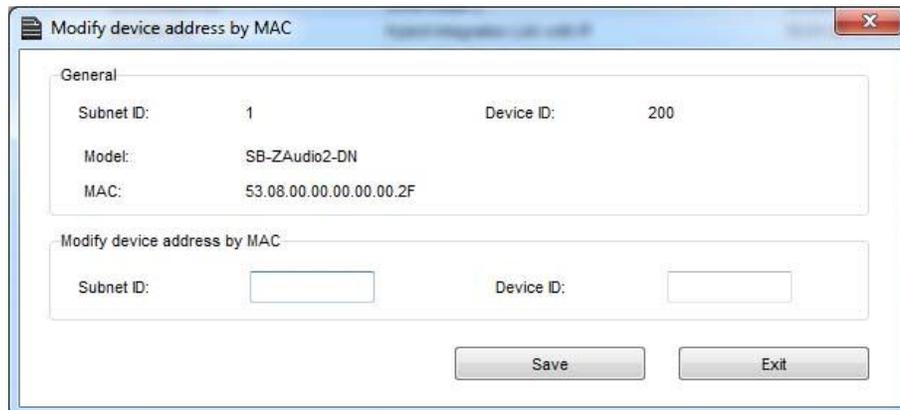
2-4 Steps of Basic Programming

The Basic Programming for Lighting Motor and HVAC of S-bus Products
has procedure of Basic Steps as following
A- Check the communication   between your computer and the Bus
B- Broadcast each Dimmer, Relay, Motor curtain   HVAC control++ initial Address
C- Change the initial addresses to the desired one (**kindly check 2.5 for addresses range).**
D- Give name of each Dimmer, Relay Module (Remark).
E- Check each Lighting channel circuit if working and connected good
F- Give name for each channel (remark).
G- Make an excel sheet for all your Dimmers, relays, other module
     address and circuit name.
H- Make Area for each Dimmer, Relay module if required .
I-   Make Scene and Sequence for each Module if required .
J- Make safety power restore and delay time for scenes and safety as
     required.
K- Check the curtain module gives it address and name.
L- Set the channel name, the running time open and close running time.
M- Give the switch (6 gangs) and panel (DDP) its addresses and Name.
N- Assign the panel button to the corresponding scene or channel.
O- Set the button graphic picture for the DDP for each button.
P- Check the HVAC address give it address and name.
Q-Set on off relay sequence.
R- Set the VAV Voltage output if required.
 S- Set the safety HVAC running sequence Ŧ assign the DDP Panel to its HVAC
unit.
U- Set the FAN speed, cool set point, type, adjust temperature sensor on the
     panel setting.
V- Set the required graphic for AC, and panel basic setting
W- Search for PIR motion sensor and give it address and name
X- Set the sensitivity, way of triggering, motion, no movement delay and
     commands
Y-connect the Z-audio 2 to the s-bus And address it
Z-Test and enhance your programming.

*Following the basic Programming steps procedure will save the
programmers time and effort.*

2-5 What is The Magic Line In our software ? :

In programming in all S-bus Modules you will find the same line with same fields that's why we called it "Magic Line " .

If you want to send any command you have to use this magic line.

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	50	Invalid switch ▾	1	2	N/A
2	10	11	Invalid switch	12	13	N/A
3	255	255	Invalid switch	255	255	N/A
4	255	255	Invalid switch	255	255	N/A
5	255	255	Invalid switch	255	255	N/A

If you notice the Command Line is contained of :

Function No. : indicated to Order/Function Number , the maximum order you can put is depend of the module .

Subnet ID : each device has subnet ID in our software you can put up to 254 subnet ID.

Device ID : additional to the Subnet ID also each device must has uniqe ID to avoid the conflict . and the range is 254.

Each Subnet ID can cover 254 devices and we have 254 subnet ID that means the total Number is 64516 devices.

Type : What type of order you want to send, if you notice in the following pic the system has many types depend on the module

Function no.	Subnet ID	Device ID	Type	Parameter 1	Parameter 2	Parameter 3
1	1	50	Scene switch ▾	1	2	N/A
2	10	11	Invalid switch	12	13	N/A
3	255	255	Scene switch	255	255	N/A
4	255	255	Sequence switch	255	255	N/A
5	255	255	Universal switch	255	255	N/A
			Single channel lighting			
			Curtain switch			
			SMS control			
			Panel control			
			Broadcast scene			
			Broadcast channel			
			Security module			
			Zone-Audio 2			

Parameter 1 ,Parameter 2 and Parameter 3 are related to "TYPE" field like this Table :

Function type	Parameter 1	Parameter 2	Parameter 3
Invalid	N/A	N/A	N/A
Scene Switch	Area Number	Scene Number	N/A
Sequence Switch	Area Number	Sequence Number	N/A
Universal Switch	Switch Number	ON / OFF	N/A
Single channel	Channel Number	Brightness 0-100%	Fade time 0S - 60 M
Curtain Switch	Switch Number	Stop / ON/ OFF	N/A
SMS	Message	Message SMS Number	N/A
Panel	Invalid	N/A	N/A
Panel	IR Receiver	ON / OFF	N/A
Panel	Lock	ON / OFF	N/A
Panel	AC Power	ON / OFF	N/A
Panel	AC Cooling	0-30 C , 32- 86F	N/A
Panel	ACFan Speed	Auto/high/med/slow	N/A
Panel	AC Mode	Auto/Cooling/Heating/FA	N/A
Panel	AC Heating	0-30 C , 32- 86F	N/A
Panel	Rise temp	0-30 C , 32- 86F	N/A
Panel	Reduse temp	1-5 C/F	N/A
Panel	LCD Backlit	ON / OFF	N/A
Panel	LCD status ligh	1~100	N/A
Panel	Floor heating power	ON / OFF	N/A
Panel	Floor heating mode	Normal-day-night -away	N/A
Panel	Goto page	1~7	N/A

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Function type	Parameter 1	Parameter 2	Parameter 3
Broadcast scene	All Areas	Scene Number	N/A
Broadcast Channel	ALL Channel	Brightness 0-100%	Fade time 0S - 60 M
Security Module	Area Number	Arming Mode	N/A
Zone-audio 2	Source Control	SD Card/Audio In/FTP Server/FM Radio	N/A
Zone-audio 2	Play Mode	No Repeat/ Repeat Song/ Continued/ Repeat all	N/A
Zone-audio 2	Play List/Radio Channel	PREV Play List/Next Play ListSpecify Play List No/PREV	N/A
Zone-audio 2	Play Control	PREV Song/Next Song/Play/Stop	N/A
Zone-audio 2	Volume	VOL	0-100
Zone-audio 2	Volume	TREBLE	Reduce/increase
Zone-audio 2	Volume	BASS	Reduce/increase
Zone-audio 2	Play Specify Song	Folder No.	Song No.

3-Logic Module:

3-1 Logic Overview:

Central Time Clock and Main Automation Controller. It is the smart system servant that assist and monitor temperature, events, energy consumption, patterns, with main Targets: maintain, safeguard, protect and economize. It Can Trigger prayer announcements, reminders, alerts, macros, and moods. Each Logic module Consist of 240 tables, Each Table of 4 programmable Logic Lines totaling up to 960 Line of Logics using simplified (and, Or Nand, Nor, with 255 Flags). Logical condition consist of trigger combinations like: time, scene Light channel status, curtain status, room temperature, security mode, day night, time... and so on

3-2 Logic time and location sitting   :

In the _time and location_ tab you can easily change the time and the date of the system
Also you can select your exact location from **Location** button which is good to calculate Sunrise and sunset time accordingly to your location:

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The timing that shown on the DDP is token from the Logic central time .

For Muslim Prayer times you can check "**method for prayer Times"** then you will
get multi options you choose according to your Location "juristic" "Doctrine".
After you click save you will get prayer times (Fajer, Dhuher, ASR, Magreb, and
Ishaa) :

Geographic Location
Latitude	+	25	Degree	15	Minute
Longitude	+	55	Degree	17	Minute
Time zone	(GMT	+04	:	00	) ☑ Method For P

Fajr: 4:28
Sunrise: 5:51
Dhuhr: 12:18
Asr: 15:48
Maghrib: 18:44
Isha: 20:14

Dhuhr Maghrib Prayer Time
Dhuhr   1   Maghrib   1

☐ Day Light Savings
Shift 1 Hour before(M/D):   4   1
Shift 1 Hour after(M/D):   8   1

Juristic Methods(For Asr prayer)
◉ Standard(Imams Shefi, Ianbali,and Malik)   ○ Hanef

Method for Prayer Times
○ Muslim World League
○ Egyptian General Authority of Survey
○ University of Islamic Sciences,Karach
◉ Umm Al Qura
○ North America
○ Twilight Angle in degrees   Fajr: Isha:

Now for **logic** tab you have **20** pages , you can put your commands here on the
black screen

Select device
Device   1-303-SB-Logic2-UN   ☑ Equipment activation   💾 Save   Logic No: 1:garden

Double click on the blank screen to enter "Modify mode" :
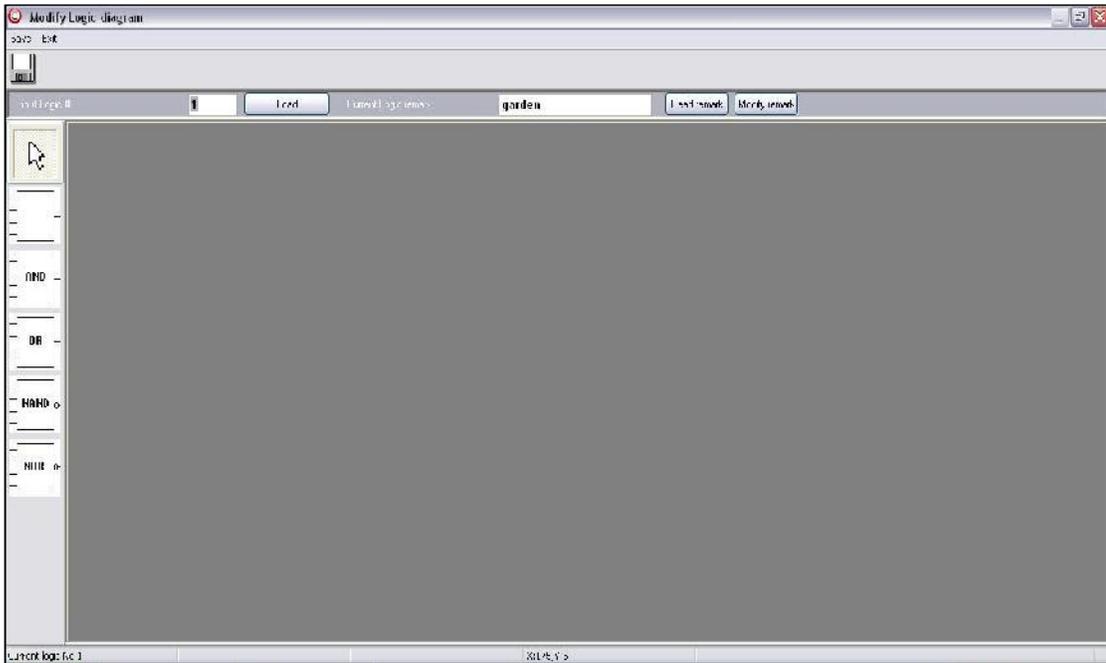
The concept of the logic like the following:

- Put your conditions as blocks :
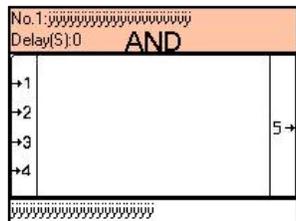
- If the statuses of these conditions are true then your commands accordingly to your conditions will execute.

3-3 Logic And, OR, NAND, NOR Conditions

- You have on the right side **4** logic blocks you can use it as you want :
  (And ,Or, Nand , Nor)

S-BUS - Smart Home Programming Guide Ver: 2.2
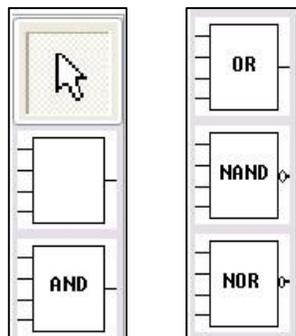
- **And** : must be all the input (s) **true** (on) to execute the output.

   You have in each block (box) 4 inputs .
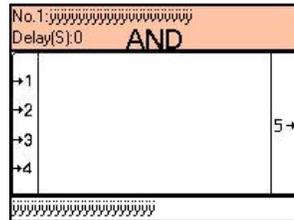
- **OR :** if any input of the 4 inputs **true**(on) the output will execute direct even if the other inputs not true
- **Nand :** must be all of the input(s) **false** (off) to execute the output
- **NOR:** if any input **false** (off) then the output will execute .

3-4 Logic pin setup :

In Logic module there are inputs (conditions) and output (commands)**.**
Lets say you want if the time is sunset <u>(this is the input as a condition)</u>.
Also lets say you want turn on the garden lights if sunset (<u>this is the output as a
 commands)</u>.

To put an input(s) :
- open the logic module through smart cloud software .
- go to logic tab .
- choose any page from 1~20 .
- double click on the blank screen ,drag the suitable box (And ,OR,Nand,Nor) and drop it on the blank screen.
- Right click on that box and select "Pin setup"
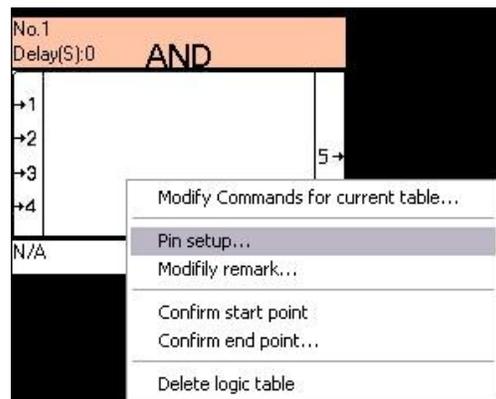
You will get the input window that has two sections :

1- Relation section :

You can change the type of the box AND to Nor to OR to Nand and vice versa
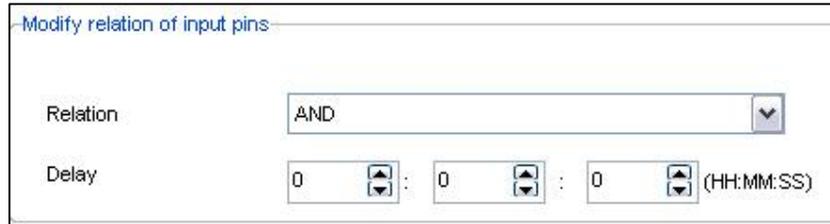
2- Pin Configuration section :

In this section we have two options

 - Select input Pin : you can choose any in put sense you have 4 inputs in each box.

- Type : you can link for each input the following types:

- Week type :
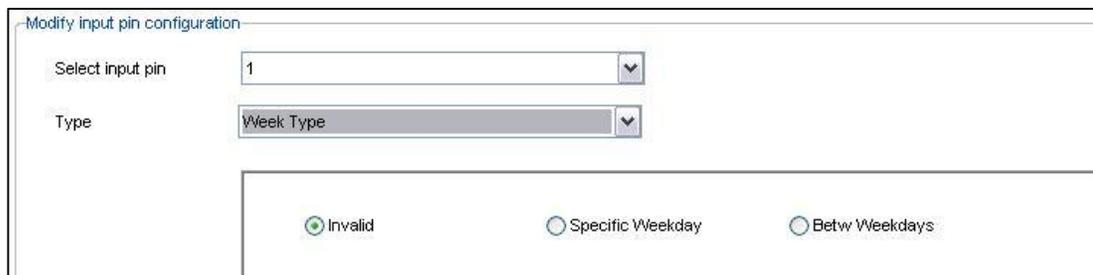
- Year Type:

- Time Type:

- Device channel status:

You can choose any channel from any dimmer or relay as an input:

💡 if channel **No.1** from dimmer address **50** that has subnet **1** if its **ON** send me an SMS. Or whatever …

- Device Scene status

Also you can use any scene as an input.

If scene **No 1** in dimmer address **50** ,subnet **1,** in **Area** 1 then switch on the AC .

- Device Sequence status

Same like scene status.

- Logic switch

Logic switch like a flag , you ask the system to execute some commands according to the result of this flag if **ON** or **OFF.**

-Logic switch: you have from 1~254 flag

-Switch status: ON/OFF

-Remark: just remark to recognize which flag you are using now.

💡 **:** let's say you create two box :
- the input for the first box is :**if sunset** and the output : **create flag 200 on**
- the input for BOX 2 :**if flag200 on** and the output **turn on all lights**

- Device universal status :

Its same like Logic switch but this one for the external flag not the logic flag

⚠ : There is deference between internals flag and external flag the first one : for the logic module , the second one for external device like 9in1 sensors.

- Panel status (DDP)

Here you can use all the functions in the DDP as an inputs.

IF AC in Living room **ON** ,then put the **fan speed** on **HIGH**

- Security Status

Also all features in security module you can use it as an input like :
AWAY,NIGHT,DAY,OFF…..

3-5 Logic Modify output

The Output is exactly like any S-bus commands ,Like MAGIC LINE (see 2-5)
To put an output(s) :

- open the logic module through smart cloud software .
- go to logic tab .
- choose any page from 1~20 .
- double click on the blank screen ,drag the suitable box (And ,OR,Nand,Nor) and drop it on the blank screen.
- Right click on that box and select "Modify Commands for current table"
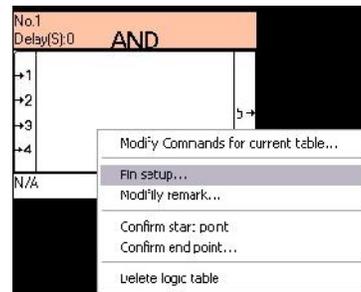
You will get this window :
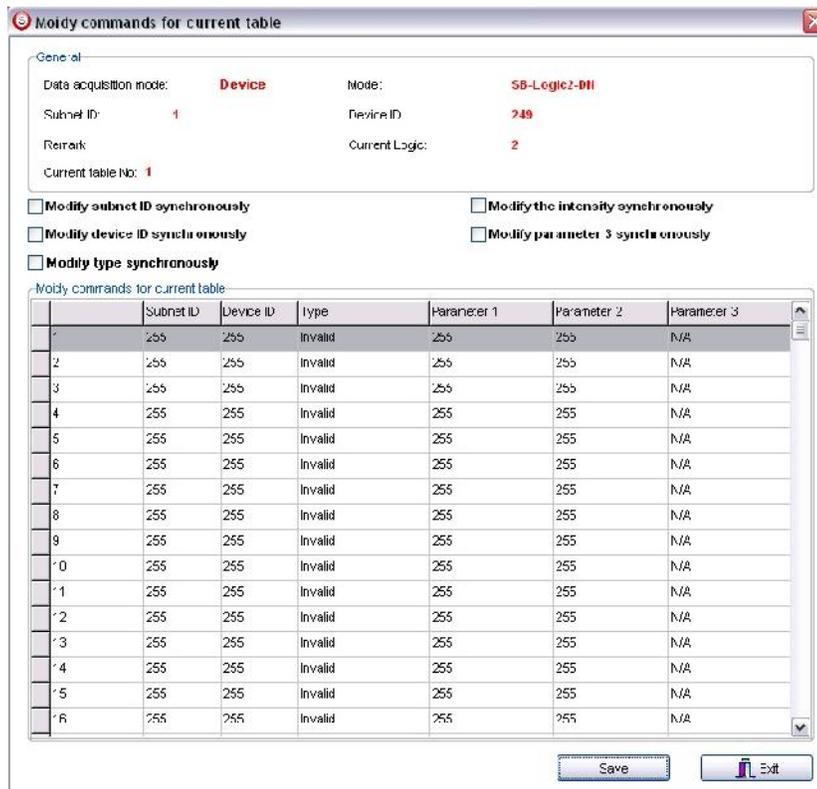
Now Like any s-bus Commands put your desire commands for output.

4-Adhan Mode :

4-1 Adhan Overview:

The **adh n** is the Islamic call to worship, recited by the *muezzin* at prescribed times of the day.
The main purpose behind the multiple loud pronouncements of **adhan** in every mosque is to make available to everyone an easily intelligible summary of Islamic belief. It is intended to bring to the mind of every believer and non-believer the substance of Islamic beliefs, or its spiritual ideology. In modern times, loudspeakers have been installed on minarets for this purpose.

4-2 Adhan Required Items

To setup an Adhan mode as standalone system, you need the following:

- Sbus- Z-aduio2 with SD-CARD (not micro nor not Adapter).
- Speaker(s) .
- Logic Module
- DDP (optional)
- Adhan File , choose you desired file or download this :
  https://www.dropbox.com/s/0ogte2n33htfxax/001-Azan.mp3

System Assembly Diagram

4-3 Adhan Programming:

- Make sure your items are online (Z-Audio +Logic Module)

- Open you logic module and navigate to "time and location "
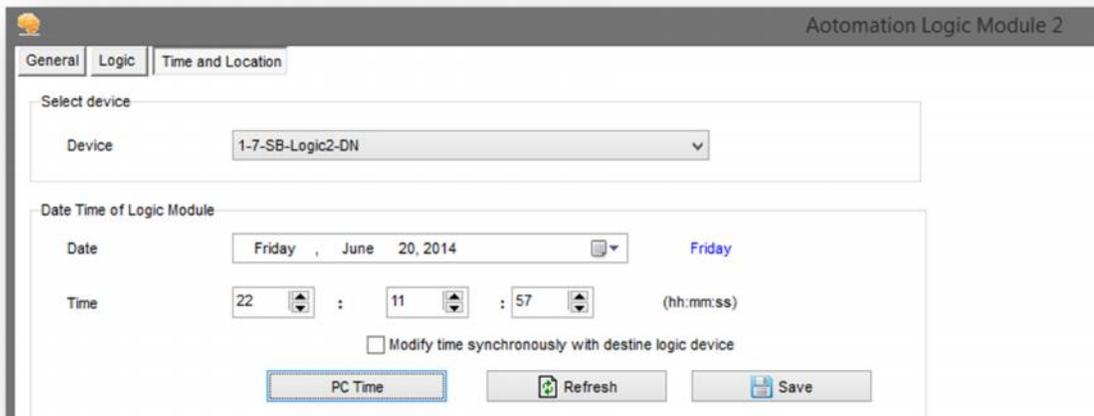

- Setup your Date and time either by pressing "PC Time" button or manually then **Save**

- Choose your location carefully since the embedded time in the logic module will calculate the Longitude and latitude according to you location (country/city).
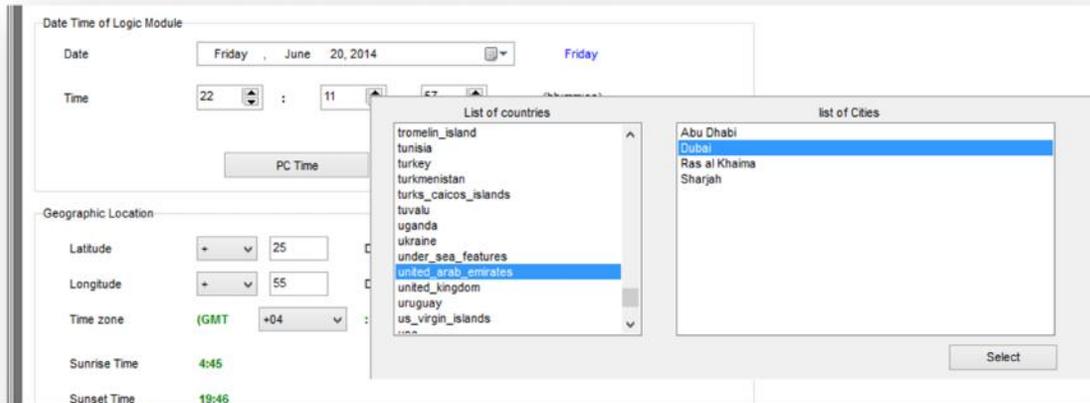
- Enable the times Prayer by check the "**Method for prayer times**" then you will get the prayer times according to the chosen location :
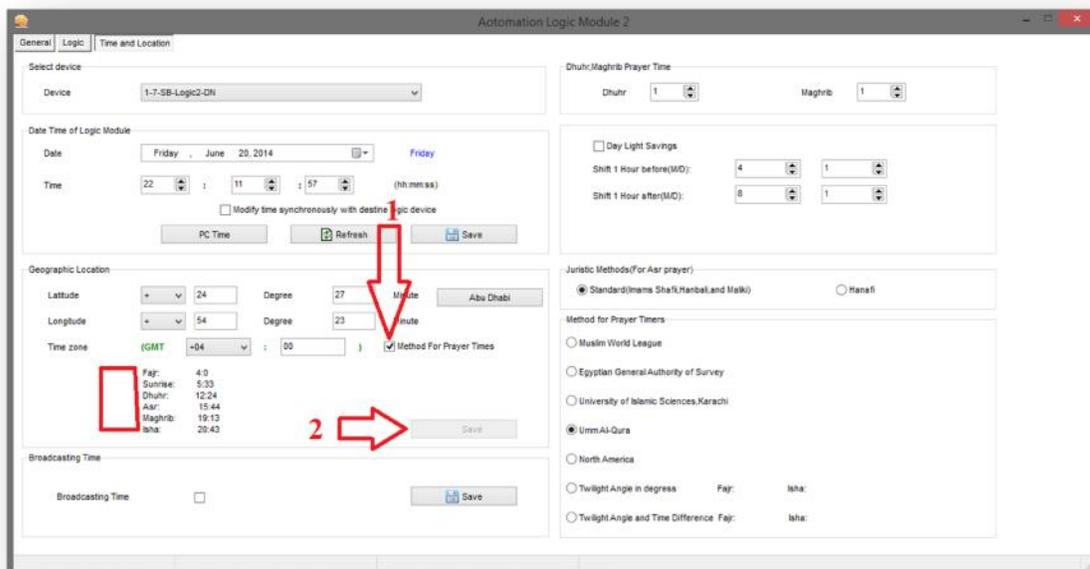

Save !

Don't forget to choose the method of prayer on left side like: Um Al Qura …etc according to your city.

- Choose your Doctrine (Mazhab) according to your/Client Religion or keep it as standard.

After you save navigate to "Logic" window and select any page out of 20 pages:
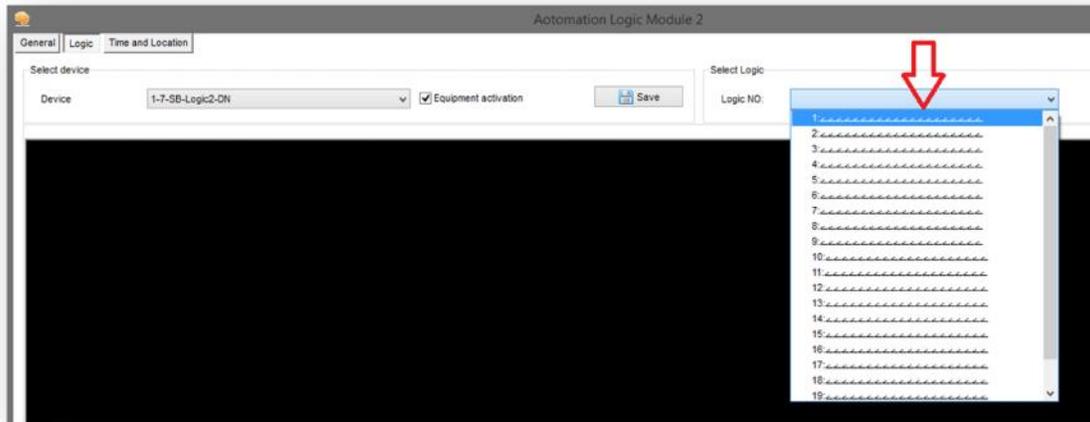

- Double click on the blank screen then you will get again a blank screen but with Boolean boxes on the left:
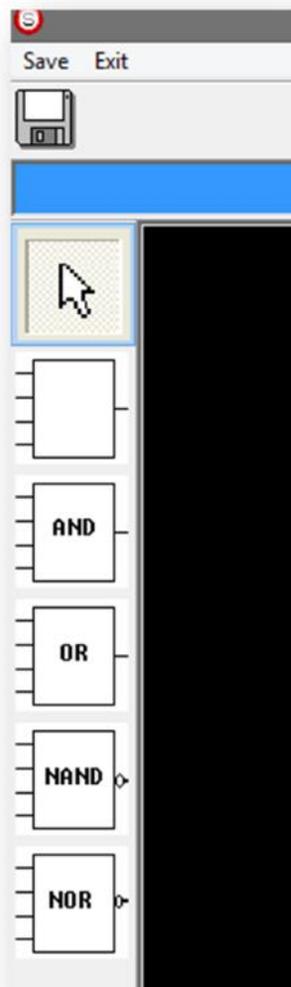
- Drag and drop the "OR" box on the blank screen and repeat this action again to get totally to box of Boolean "OR".
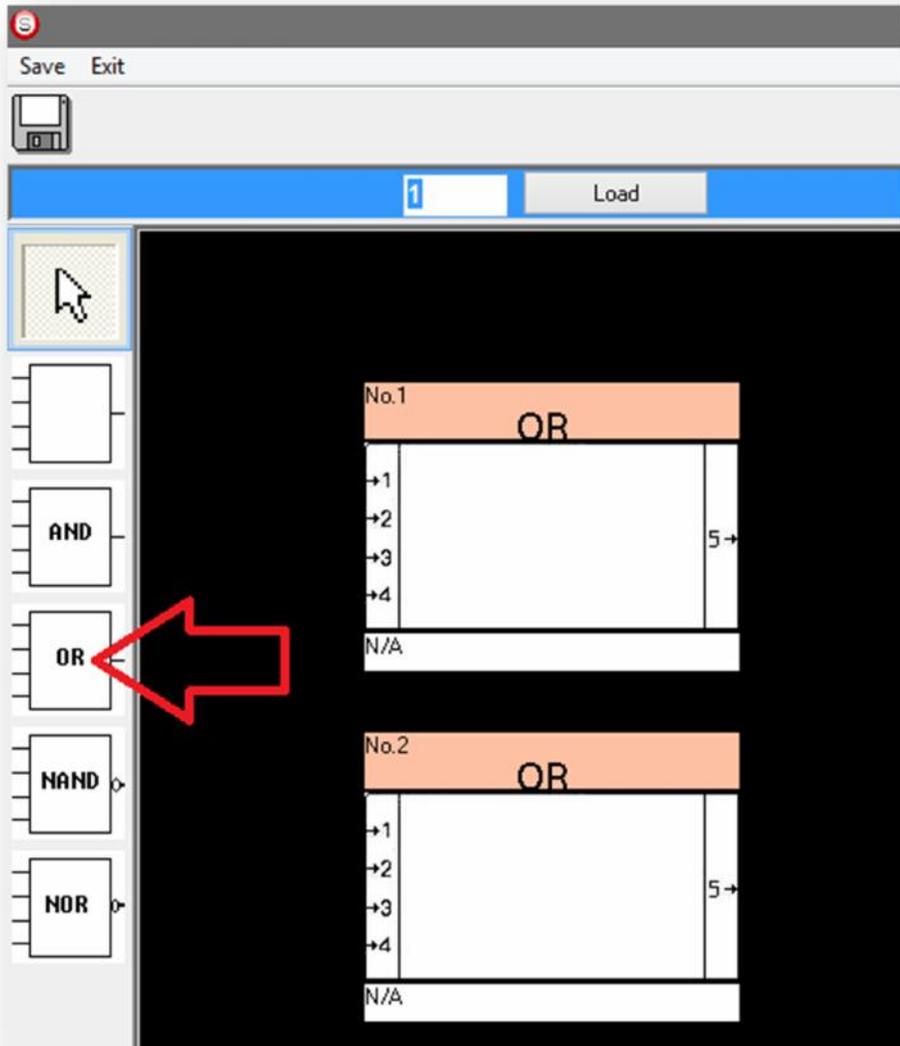
- Right click on any "OR" box then select "Pin setup".


Then :

Then "Apply".

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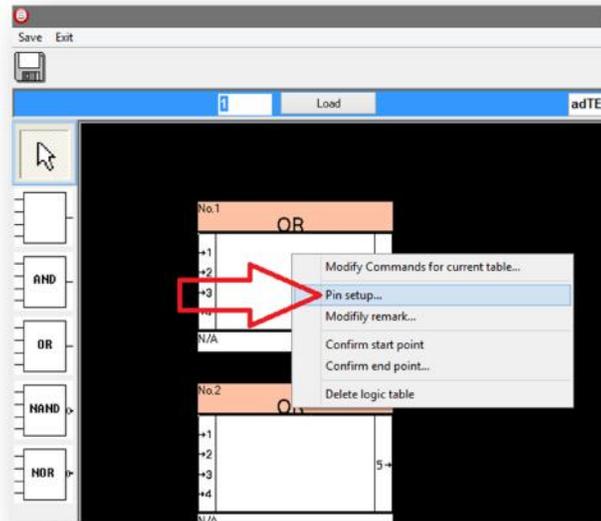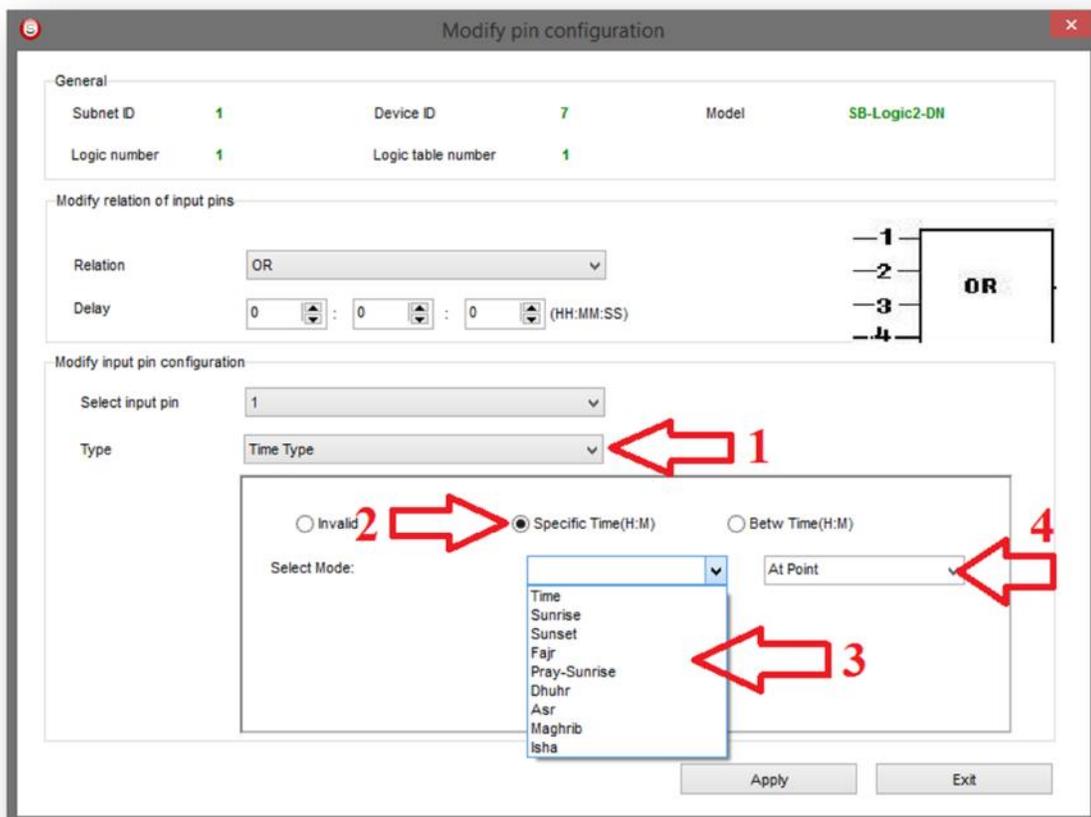
We chose as example "Dhur" as input No.1 no we have to do the same for input No.2 , No.3 and No.4
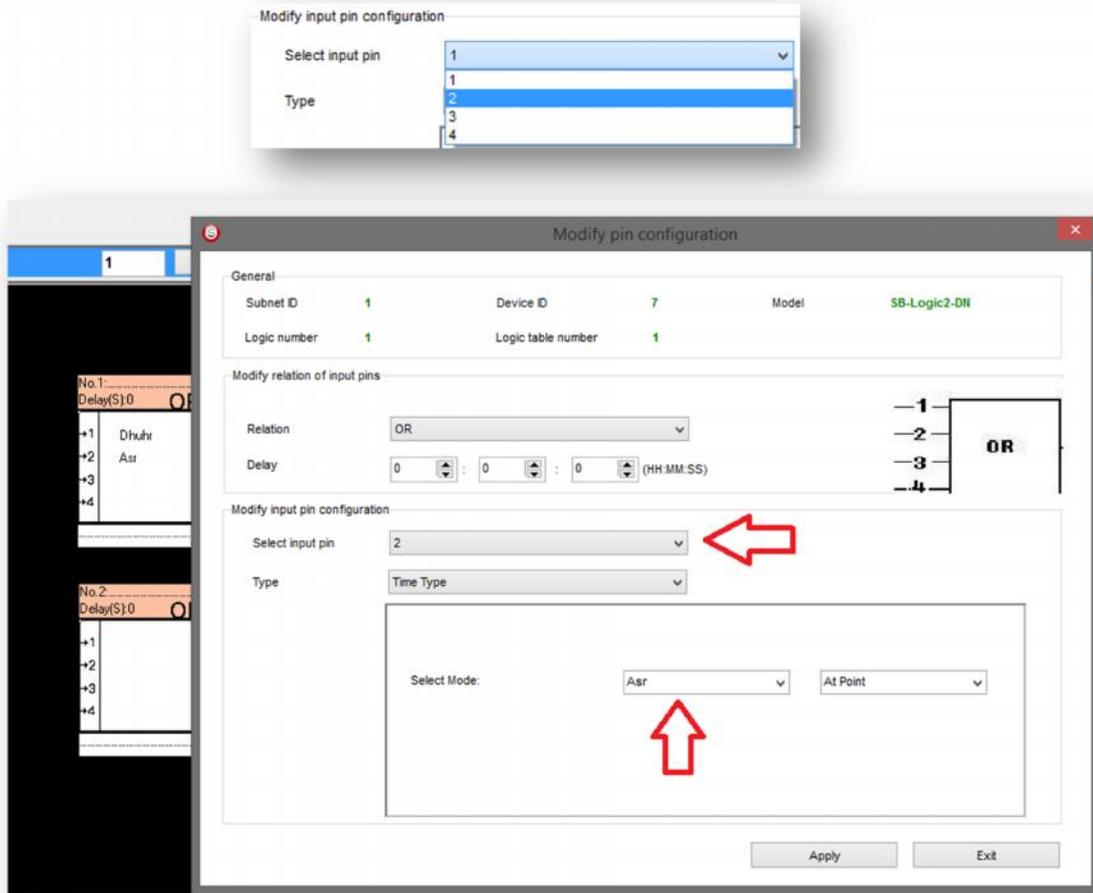
Continue the same thing for No.3 :
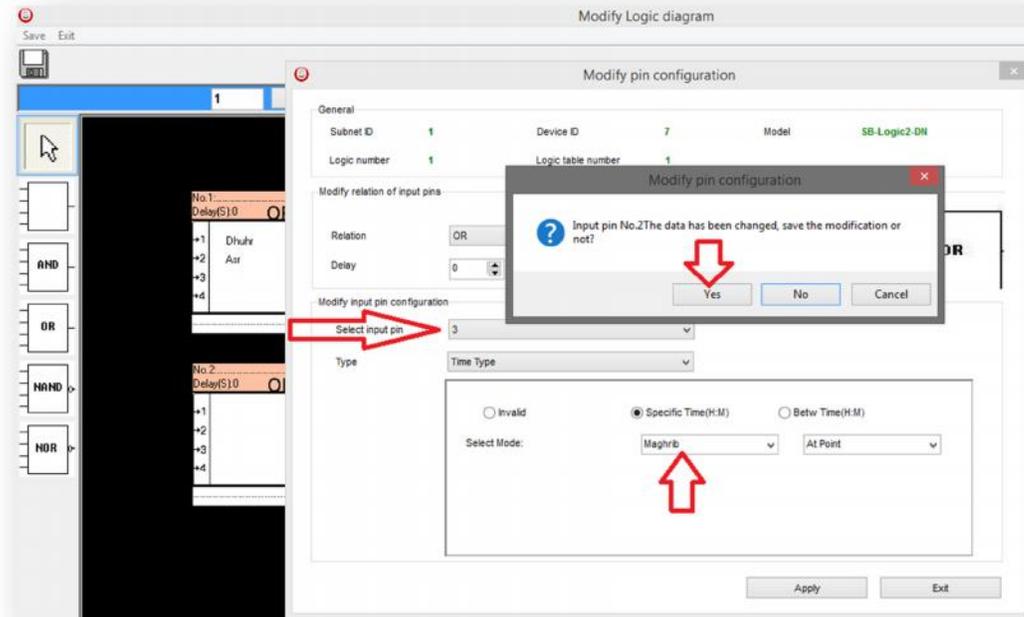
After you finish all prayer times (Fajer, Dhur,Asr,Isaa) you will get like this Figure :
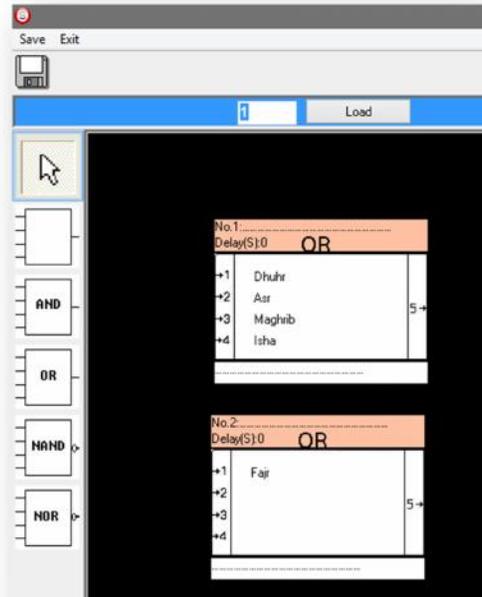

Click on "Save" then close.

- Put your SD-CARD in the Z-aduio
- Power it on and wait for 20 sec to make sure that the Z-Audio generate the "Special" Folder.
- For Adhan mod it's recommended to place the Adhan file in the **"Special"** folder itself.

If you download adhan file from dfferencnt source make sure two things :

1- The format is MP3
2- The file name must be **001**-XX.MP3 (XX= any name)
Or **002-**XX.MP3
Or **003-**XX.MP3

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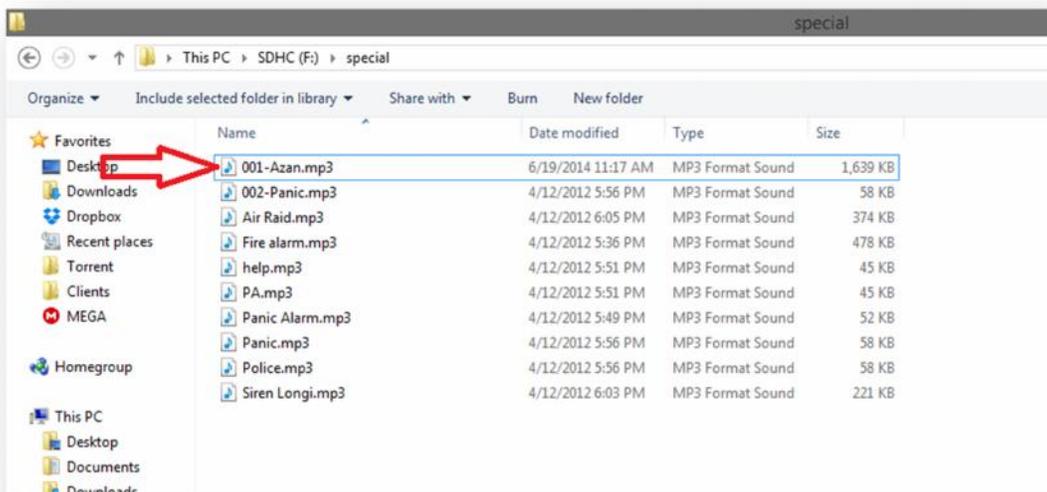
- Put back your SD-Card in your Z-audio
- Open again your Logic module
- Navigate to "Logic" tab.
- Select the page that you place two "OR" boxes before.

Now we have to assign the Output (Commands) by right click on first "OR" box and select "Modify Commands for current table" :
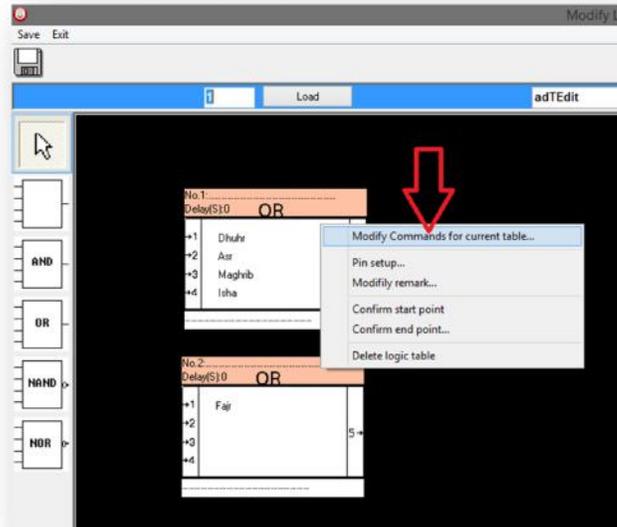
- You will get the S-bus Command window ,
- Put like the following :
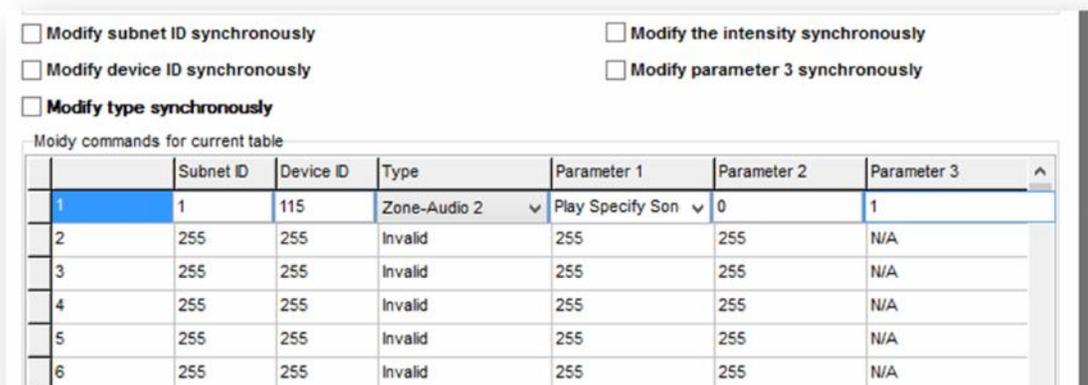
Device ID: **your Z-Audio ID**
Type: **Zone-Audio**
Parameter 1 : **Play specify song**
Parameter 2 : **0**
Parameter 3 : **1**

Note in Parameter 2:   **0** means the "special" folder in the SD-CARD
    in Parameter 3:   **1** means the file with name 001-
                        2 means the file with name 002-
                        3 means the file with name 003-
Save this window and save on main page then you're Done.

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