



NETWORK CONTROLLER

Datasheet Rev.1, Jul 09/06

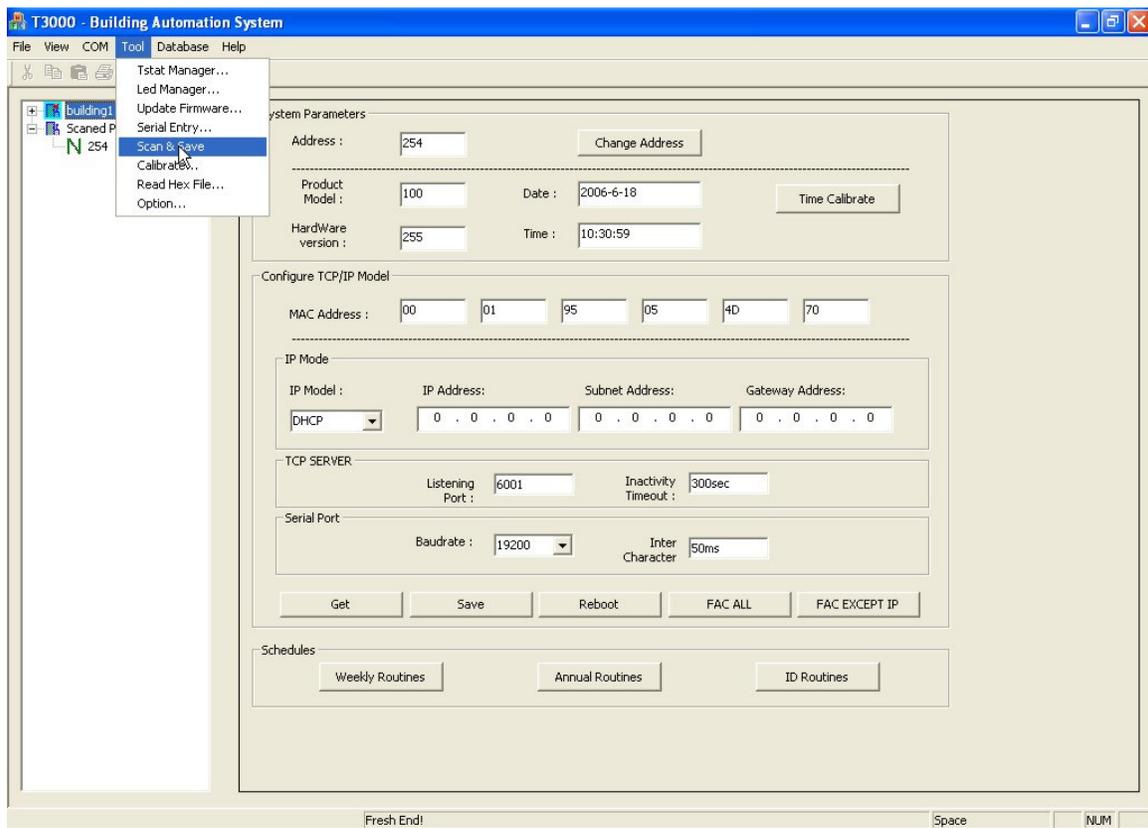
How to start

The Network Controller has two ways to connect to main station. one is via serial port RS232,another is through Ethernet.

But you should configure the Network Controller via serial port before you access Network Controller by Ethernet.

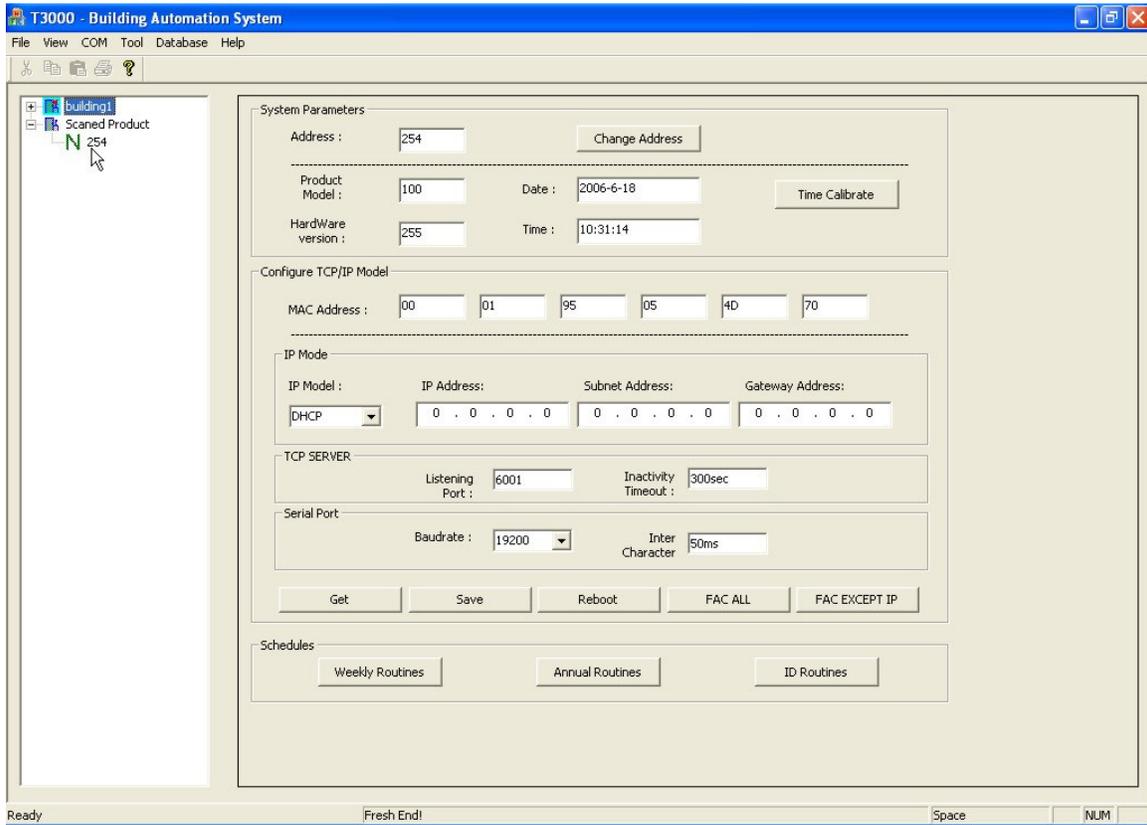
Following these steps to set up a configuration.

Open T3000, then left click tool/save & scan



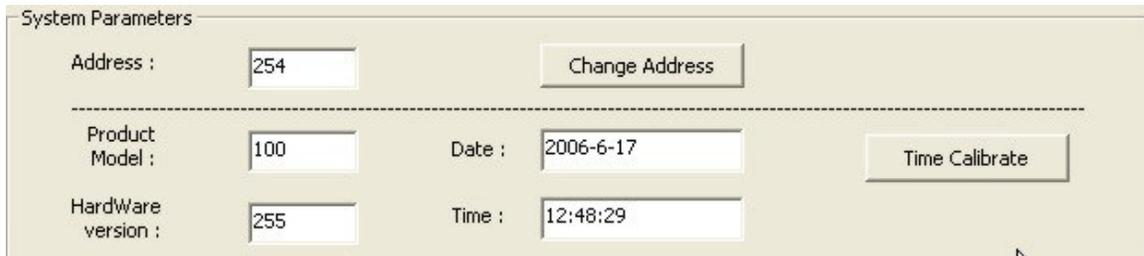
Waiting..., then you will see this screen and left of the screen will show “N Id”, The Id mean the address of network controller .for example, 254 means that the Network Controller address is 254.

And the address can not be 0 and 255.



Configure Network Controller

System Parameters





Address

Input a number the range from 1 to 254 if you want change the Network Controller address.

Then click “Change Address” button to write the changed address to network controller.

Product Model and Hardware Version

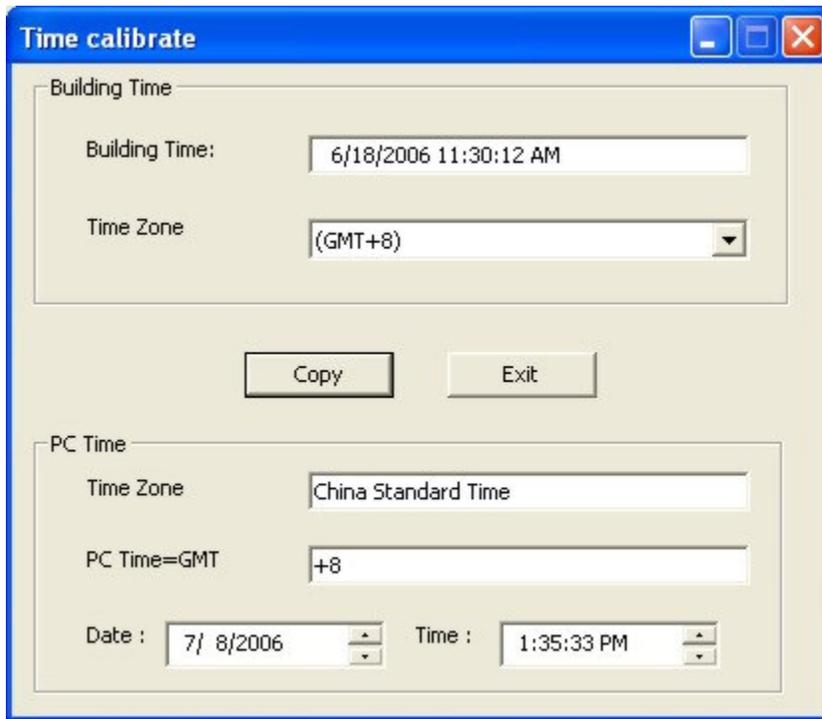
Read only.

Just show some information about Network Controller, can not be changed.

Date and Time

Here displays the current date and time which is stored in the network controller.

Click “Time Calibrate” button to change it if the time is not what you want.



Building Time

The time is read from network controller.

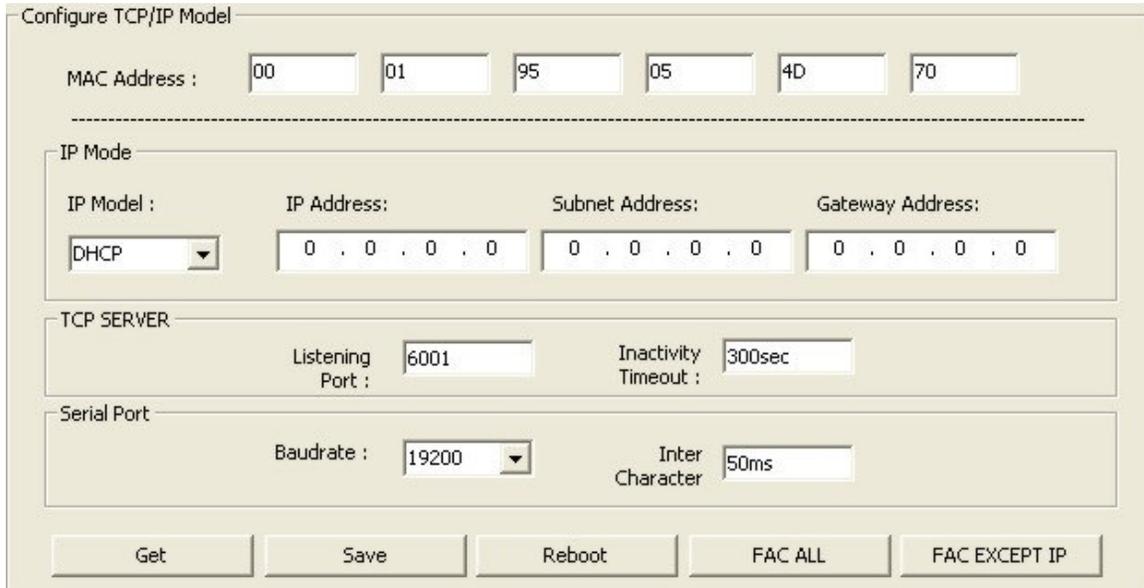
PC Time

This time is read from your computer.

So you only copy your computer time to the Network Controller if you click “copy” button.

Please make sure first your computer time is right before you click”copy” button.

Configure TCP/IP module



Configure TCP/IP Model

MAC Address : 00 01 95 05 4D 70

IP Mode

IP Model : DHCP

IP Address: 0 . 0 . 0 . 0

Subnet Address: 0 . 0 . 0 . 0

Gateway Address: 0 . 0 . 0 . 0

TCP SERVER

Listening Port : 6001

Inactivity Timeout : 300sec

Serial Port

Baudrate : 19200

Inter Character : 50ms

Get Save Reboot FAC ALL FAC EXCEPT IP

MAC Address

The MAC address of network controller, read only.

IP Mode

You have two choices to configure the IP mode of Network Controller via select items at IP Mode listbox.

STATIC

If you select STATIC item at IP mode listbox.

You will have to set the IP address, Subnet Address, Gateway Address following the IP mode listbox.

DHCP

If you select DHCP item at IP mode listbox.

You do not need to set the IP address, Subnet Address, Gateway Address following the IP mode listbox.



But please make sure that your net server support DHCP protocol and can assign an IP address to the Network Controller, which is connected to your net.

TCP SERVER

The Network Controller has only one mode which is TCP server mode.

At this mode, the default TCP state is[Listen],if there is any incoming TCP connection request, the state will be changed into

[Syncreceived],then[Established],which means a session is opened.

For a while, data will be transferred between hosts.

This is the [Data] state.

The session will be disconnected due to the request of one of them, which is [Closed] state.

And then, the state is automatically changed to its original state,[Listen].

Here is the state transition.

[Listen]→[Sync-received]→[Established]→[Data]→[Closed]→[Listen]

There are two parameters need to configure.

Listening Port

The value of listening port should be greater than 6000 and less than 32767.

Inactivity Timeout

The value of listening port should be greater than or equal to 0 and less than 32767.

If there are no incoming or outgoing data through the serial port during the specified inactivity timeout interval, the existing TCP connection will be closed automatically.

If the inactivity timeout value is set 0, the current TCP connection is maintained unless there is no connection close request.

Although inactivity timeout is disabled.



Serial Port

Baudrate

The Network Controller has two baudrates just like MPC did.

You can set the Network Controller to work at 9600 baudrate or 19200 baudrate by selecting at Baudrate listbox.

Inter Character

The internal TCP/IP module of Network Controller fetches the overall data from its internal buffer.

If there is incoming data through the serial port, the TCP/IP module stores data into the internal buffer.

And it transfers data stored in the buffer via TCP/IP, only if the internal buffer is full or the inter-character time interval reaches to the time specified as inter-character timeout.

The value of inter-character should be greater than 10 and less than 5000.

Command buttons on operating TCP/IP module

Get

Click this button, the T3000 will read every parameters within Configure TCP/IP Module frame from TCP/IP module.

Save

All the parameters with Configure TCP/IP Module frame will be stored into TCP/IP module

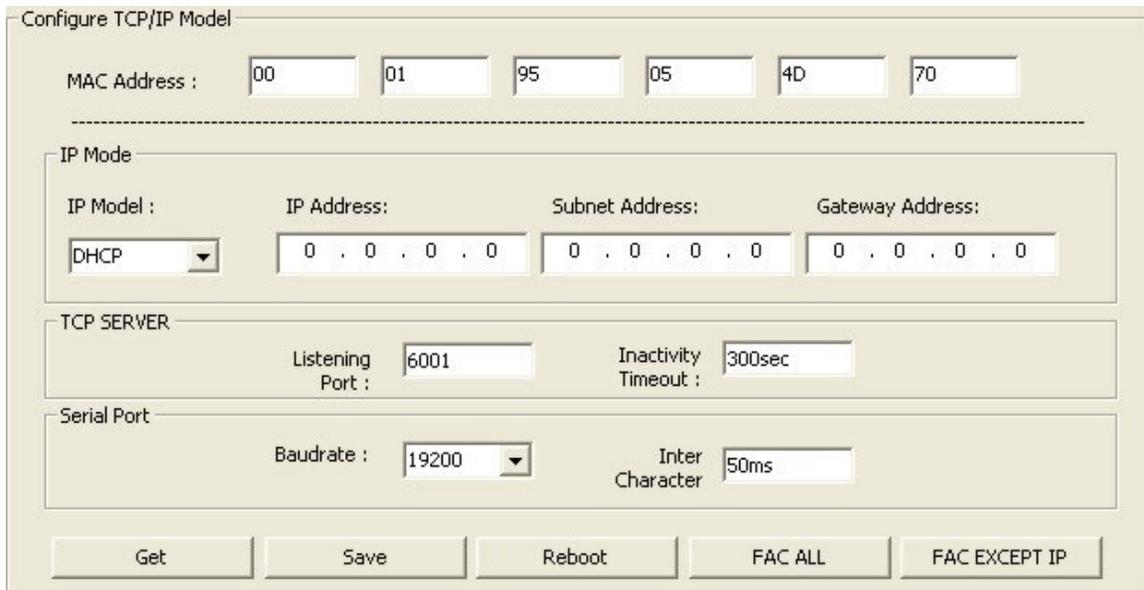
Reboot

You have to click this button after you clicked “save” button to make sure the parameters what you have saved is valid.

FAC ALL

All the parameters of TCP/IP module, what you have set was deleted and the parameters become factory default .

This screen shows the value after click “FAC ALL’ button.



The screenshot shows the 'Configure TCP/IP Model' interface with the following values:

- MAC Address: 00 01 95 05 4D 70
- IP Mode: DHCP
- IP Address: 0 . 0 . 0 . 0
- Subnet Address: 0 . 0 . 0 . 0
- Gateway Address: 0 . 0 . 0 . 0
- TCP SERVER: Listening Port: 6001, Inactivity Timeout: 300sec
- Serial Port: Baudrate: 19200, Inter Character: 50ms

Buttons at the bottom: Get, Save, Reboot, FAC ALL, FAC EXCEPT IP

FAC EXCEPT IP

All the parameters of TCP/IP module will go to factory default except IP address. And the screen should be similar to this after you click “FAC EXCEPT IP”.

Configure TCP/IP Model

MAC Address : 00 01 95 05 4D 70

IP Mode

IP Model : DHCP
IP Address: 192 . 168 . 0 . 127
Subnet Address: 0 . 0 . 0 . 0
Gateway Address: 0 . 0 . 0 . 0

TCP SERVER

Listening Port : 6001
Inactivity Timeout : 300sec

Serial Port

Baudrate : 19200
Inter Character : 50ms

Get Save Reboot FAC ALL FAC EXCEPT IP

How to configure scheduels

Schedules

Weekly Routines Annual Routines ID Routines

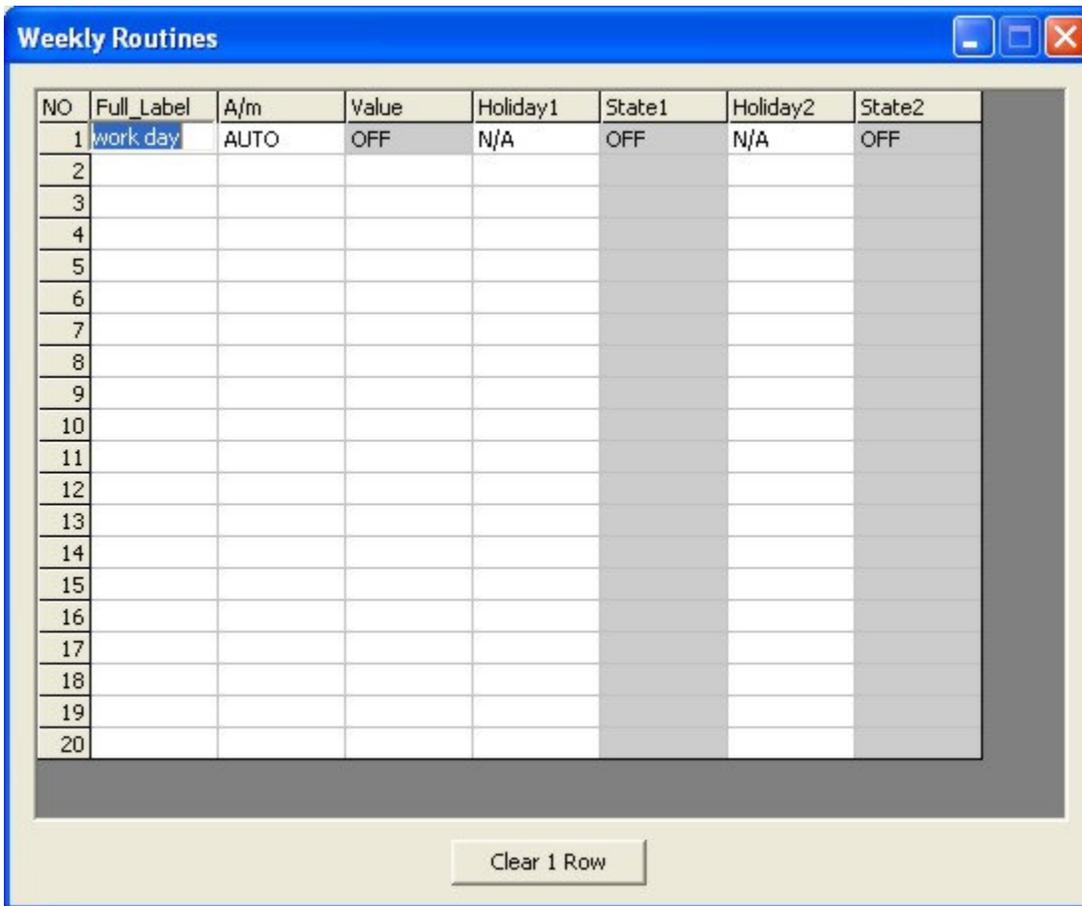
Weekly Routines

Click Weekly Routines button ,go to weekly routines screen.

There are 20 weekly routines you can use.

You can set these weekly routines as spring work day, summer work day, spring weekend day, summer weekend day, meeting day, and so on.

These routines be called “WR1”, “WR2” ... “WR20”, you will use these names when you configure ID Routines.



NO	Full_Label	A/m	Value	Holiday1	State1	Holiday2	State2
1	work day	AUTO	OFF	N/A	OFF	N/A	OFF
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							

Now let us configure one weekly routine and others are similar.

Full Label

You can assign a name for your weekly routine at this label box.

For example, You can input “work day” if you want this weekly routine to operate the MPC on work day in the office.

A/M

Here you left click your mouse you can assign this item is AUTO or MAN.

If set this item AUTO.

The value of this weekly routine is depend on the current time at ON time area or at OFF time area.

Set to MAN, you can assign the value of this routine manually.



Value

Here will show ON if the current time at ON time area and will show OFF if the current time at OFF time area.

This item is read only if A/M item is AUTO, can be read can write if A/M is set to MAN.

Note: ON time area and OFF time area refer to Time Setup of Weekly Routines.

Holiday1

Input annual routine, the format is AR1,AR2,...AR16.

If you want annual routine 6 at here, input AR6.

When the holiday which you set on the Annual routines coming.

Whatever the week is, the holiday schedule will overwrite the week schedule.

Details in Time Setup of Weekly Routines.

State1

If the current day is holiday which is set on the Annual Routines.

The state of holiday1 is ON, otherwise the state of holiday1 is OFF.

Holiday2

Input annual routine, the format is AR1,AR2,...AR16.

If you want annual routine 6 at here, input AR6.

When the holiday which you set on the Annual routines coming.

Whatever the week is, the holiday schedule will overwrite the week schedule.

Details in Time Setup of Weekly Routines.

State2

If the current day is holiday, which is set on the Annual Routines.

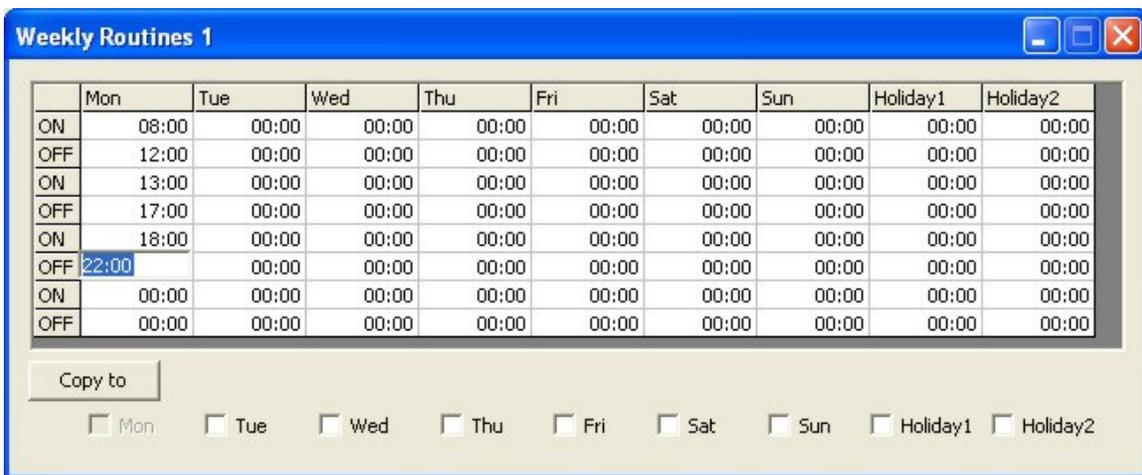
The state of holiday2 is ON, otherwise the state of holiday2 is OFF.

Time Setup of Weekly Routines

Press the "Insert" key on the keyboard of your computer, then you can set the schedule for the weekly routine which you selected.

Be careful at here, if you clicked row 2, the title of schedule screen should be “Weekly Routines 2”, and make sure the row number which you want to set and routine number which you are setting are same.

Now I clicked row 1, then I pressed “Insert” key on my keyboard.
This screen coming.



	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Holiday1	Holiday2
ON	08:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
OFF	12:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ON	13:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
OFF	17:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ON	18:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
OFF	22:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
ON	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00
OFF	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00	00:00

Copy to

Mon
 Tue
 Wed
 Thu
 Fri
 Sat
 Sun
 Holiday1
 Holiday2

On Monday column, input several time value, from these values I can know the ON time area and OFF time area.

ON time area:

08:00 to 12:00, 13:00 to 17:00, 18:00 to 22:00

OFF time area:

12:00 to 13:00, 17:00 to 18:00, 22:00 to 08:00

So if the current time at ON time area, the value of weekly routines 1 is ON.

If the current time at OFF time area, the value of weekly routines 1 is OFF.

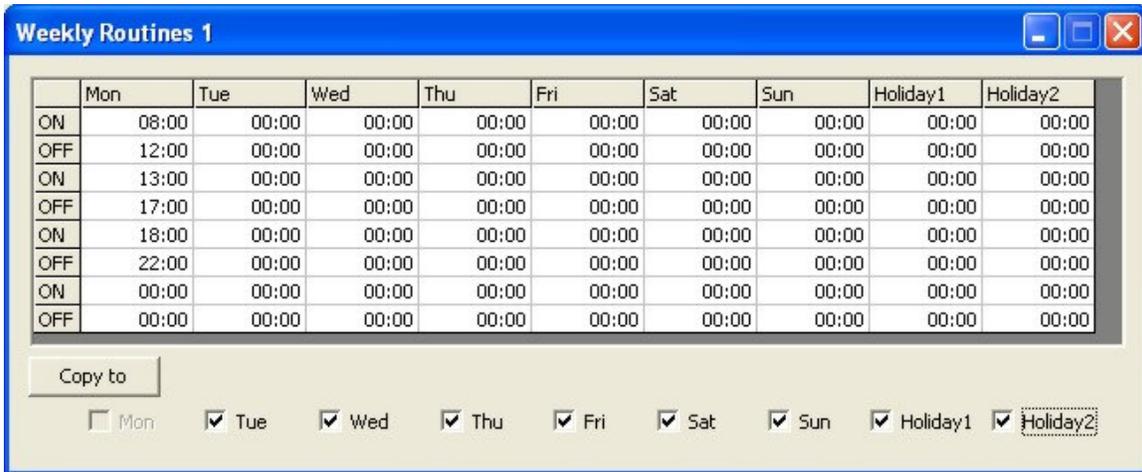
Maybe you want a special schedule on holiday such as NEW YEAR, MAY DAY.

SO holiday1 and holiday2 can be set as a special schedule.

The priority likes this.

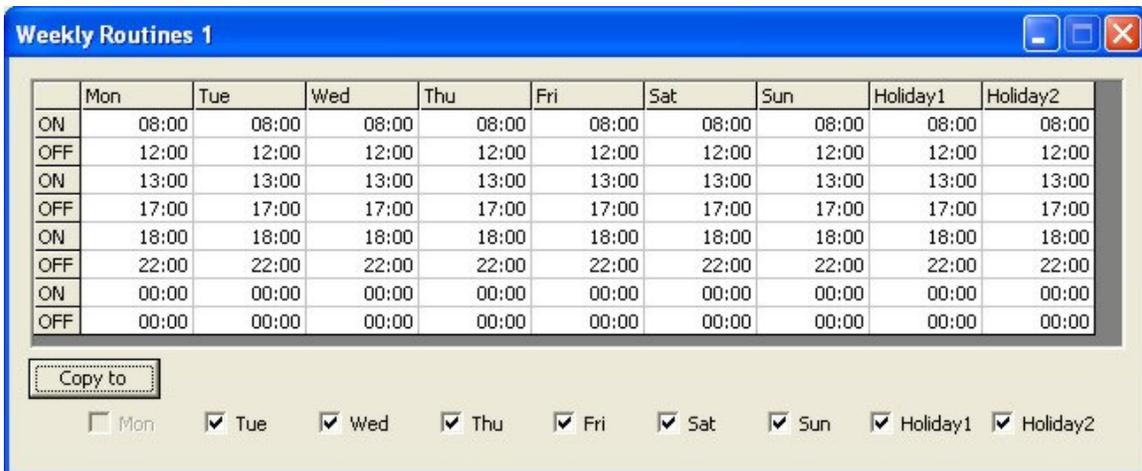
Holiday2 > Holiday1 > week

If you want set others schedule on the same screen, you does not need to input one by one, and you can select the check box on the bottom of the screen.



Then click “copy to” button.

It is OK.



Annual routines

In some special day, you need close the MPC or open the MPC a whole day.



There are 16 annual routines you can use.

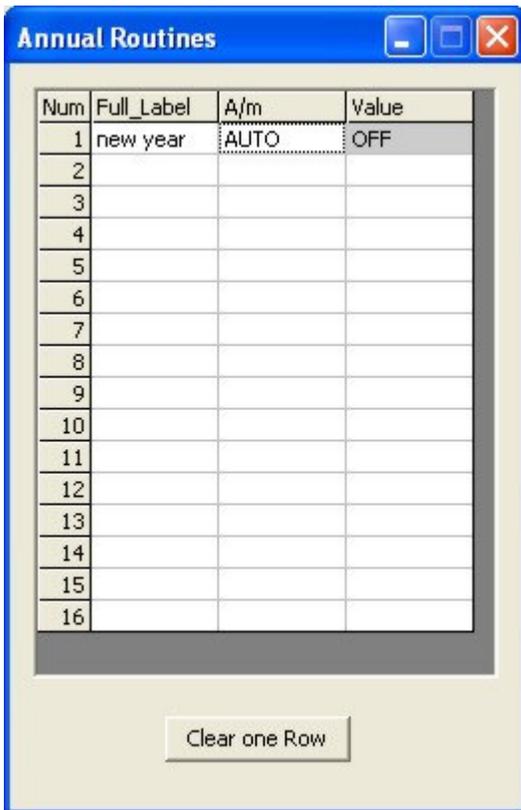
Remember these routines be called “AR1””AR2”...”AR16”.

You will use the name when you set Weekly Routines.

Each annual routine can be any day combination in a whole year.

If the holiday which you set at Annual Routines coming, the holiday schedule in the correspond Weekly Routines which you have assign the annual routine in the holiday column will overwrite the week schedule on the same Weekly routines.

Here is the Annual routines screen.



Full_Label

Give a name for the correspond annual routine, for example,NEW YEAR,MAY DAY.

A/M



A represents AUTO,M represents MANUAL

AUTO

The value of annual routine only be ON when the current day match the day which you have set in Annual Routines .

Otherwise the value of annual routine only be OFF.

MANUAL

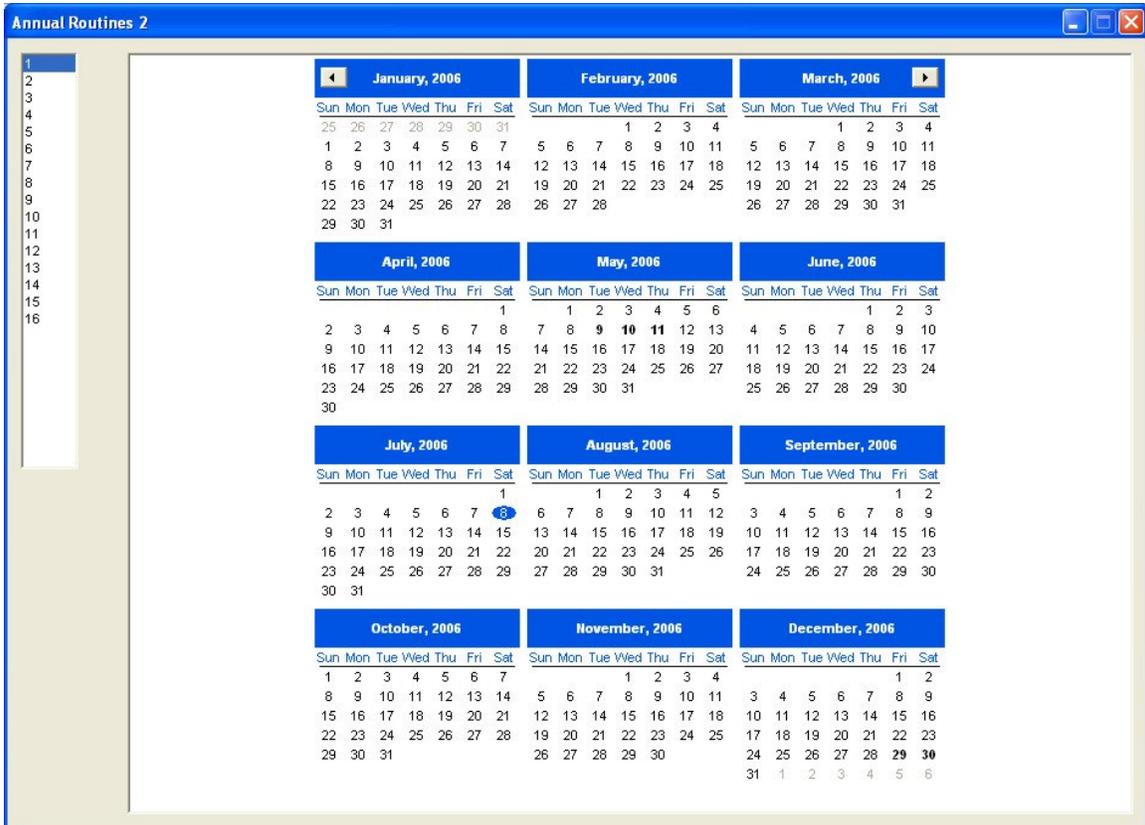
The value of annual routine only be set ON or OFF by manual.

Value

Read only when the A/M item is set AUTO and show ON only when the current day match the annual day.

Can be read and write when A/M item is set to MANUAL.

Press "Insert" key on the keyboard of your computer, then the T3000 will show the annual schedule configuration screen.



Left click your mouse at the day which you want set to be holiday .

Then right click, you will see a command screen.



Click “Add/Delete”, the day which you want to be holiday will become bold.

If you do not want some day is holiday or you set a wrong holiday, you do the following steps will delete that day.

Left click the bold day which you have set to be holiday, then right click on that day, click “Add/Delete”. OK, you disabled the holiday.

But next year, or the policy changed, you may need to re-set the schedule.

You can left click on any day then right click, then click “Clear”.

All the schedule be deleted.

You do not need back to Annual Routines screen if you want set next annual routine.

You can switch annual routine through left side text box on the annual schedule setup screen.

Don't try find save button, because your configuration has been stored when you clicked "Add/Delete" or "Clear".

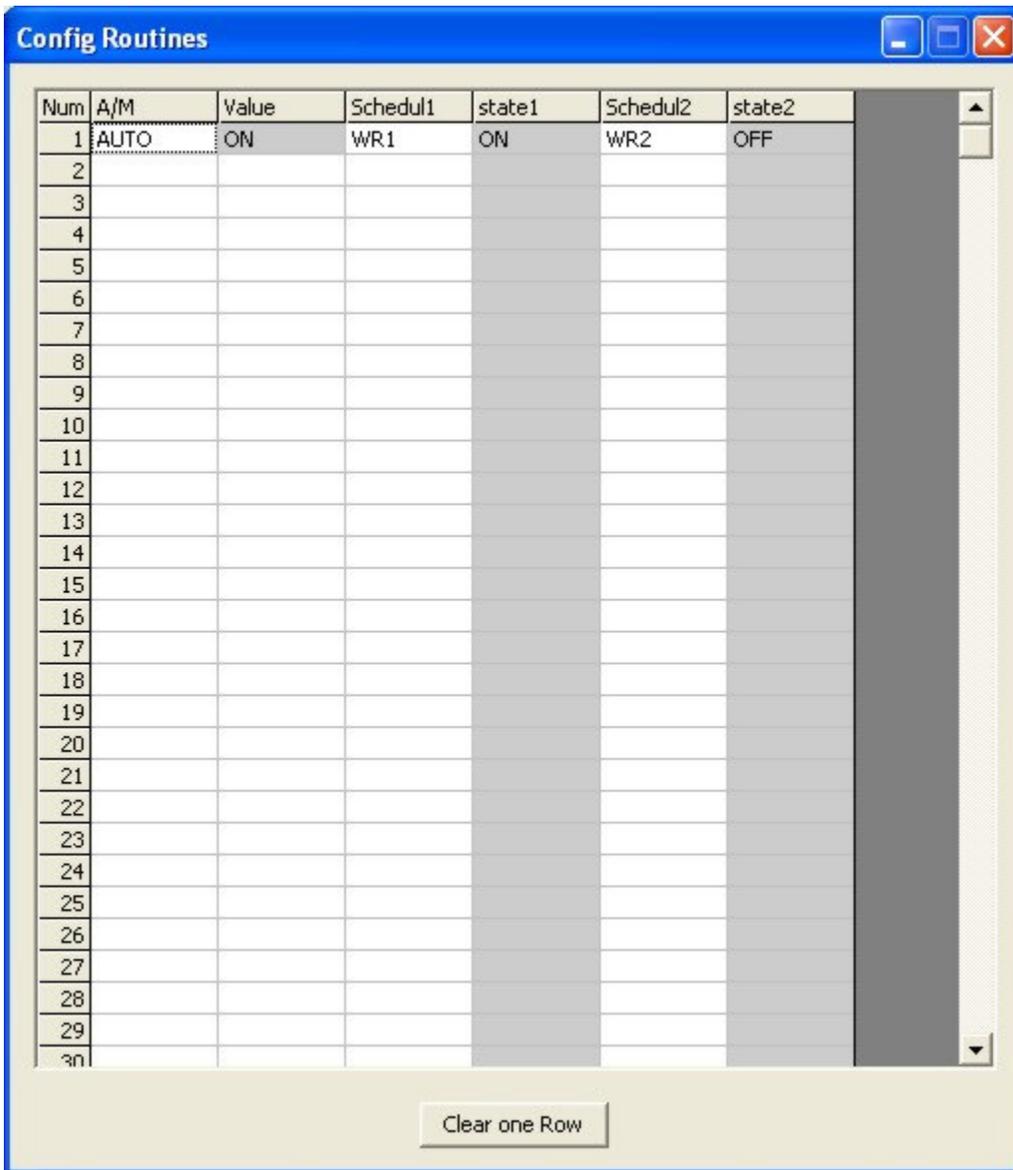
ID Routines

Here you can determine which MPC be controlled by which schedule.

But, first you should know the position of MPC and the id ,you also should clear the schedule you have set.

Of course, you do not need wary about that if you want all the MPCs use the same schedule.

Click ID Routines button then go to ID Routines configuration screen.



Num	A/M	Value	Schedul1	state1	Schedul2	state2
1	AUTO	ON	WR1	ON	WR2	OFF
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						

Clear one Row

Num column

There are 254 rows on the num column.

The num on this column represents the ID address.

All the address not only MPC address.

Because the Network Controller and MPCs work on the same BUS, so if an ID be assigned to Network Controller, the ID can not be assigned to MPCs.

But you do not need manage this manually,



The “Scan” feature of T3000 can deal with it.

Now I suppose that you only connect an Network Controller on the BUS.

And the ID of Network Controller is 254,so the address ranging from 1 to 253 can be assigned to MPC.

From up picture we can know that only one MPC connect to Network Controller, and assigned weekly routine 1 and weekly routine 2 for this MPC.

The current

A/m

AUTO

The value next column is ON or OFF according to schedule.

It means that the MPC be controlled by schedule.

MANUAL

The schedule be disabled, you can open or close MPC manually.

Value

If A/M item is set AUTO, the attribute of value column is read only and the value is ON or OFF depend on schedule.

If A/M is set MANUAL, the attribute of value column is read and write.

Schedule1

Input the weekly routine number which you have set.

The format is WR1,WR2...WR20”.If you want weekly routine 5 to control the MPC, input WR5 in the schedule1 column.

And you can not input annual routine like AR2 at here.

State1

The value of correspond weekly routine you have input in schedule1 column.

Schedule 2

Input the weekly routine number which you have set.

The format is WR1,WR2...WR20”.

If you want weekly routine 5 to control the MPC, input WR5 in the schedule1 column.

And you can not input annual routine like AR2 at here.

State2

The value of correspond weekly routine you have input in schedule2 column.

Note: The relationship between schedule1 and schedule2 is or logic.

State of schedual1	state of schedual2	result
ON	ON	ON
ON	OFF	ON
OFF	ON	ON
OFF	OFF	OFF

Configure Virtual Serial Port

After you have configured the Network Controller, you can access the Network Controller over Internet.

Connect your Network Controller to Switch or Hub with net line.

Then you can use T3000 to operate MPCs over Internet.

But be patience, let's take several minutes install a software called "Serial-IP" then configure it.

Just double click the Serial-IP .exe then click next till meet finish.

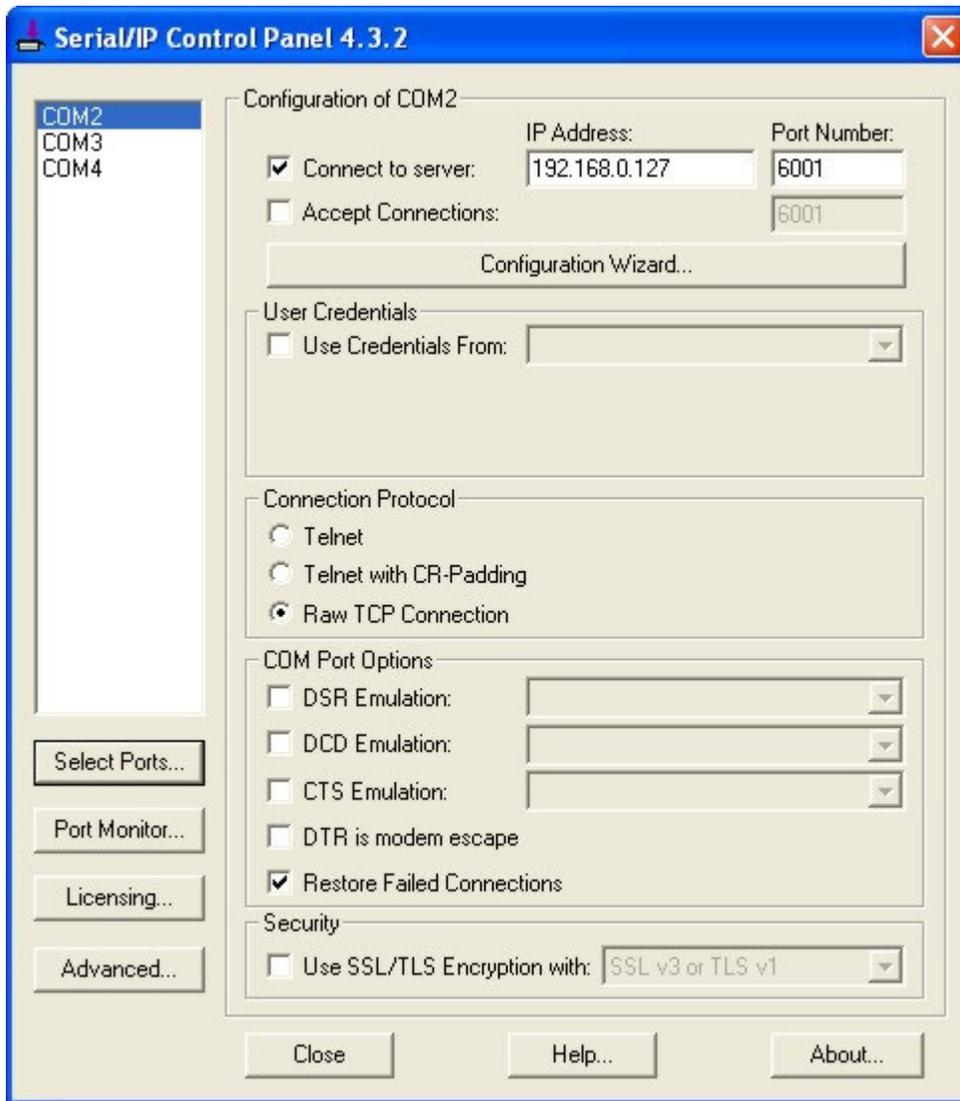
You will see an icon with arrow on the right corner in your computer after you clicked finish.



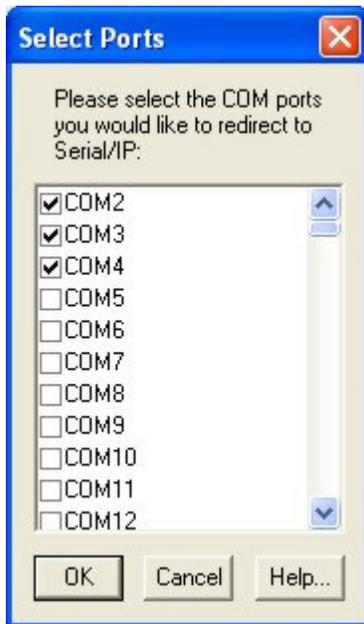
Right click that button then a command screen will pop up.



Left click "Configure..." item, go to the last part of the Network Controller configuration.

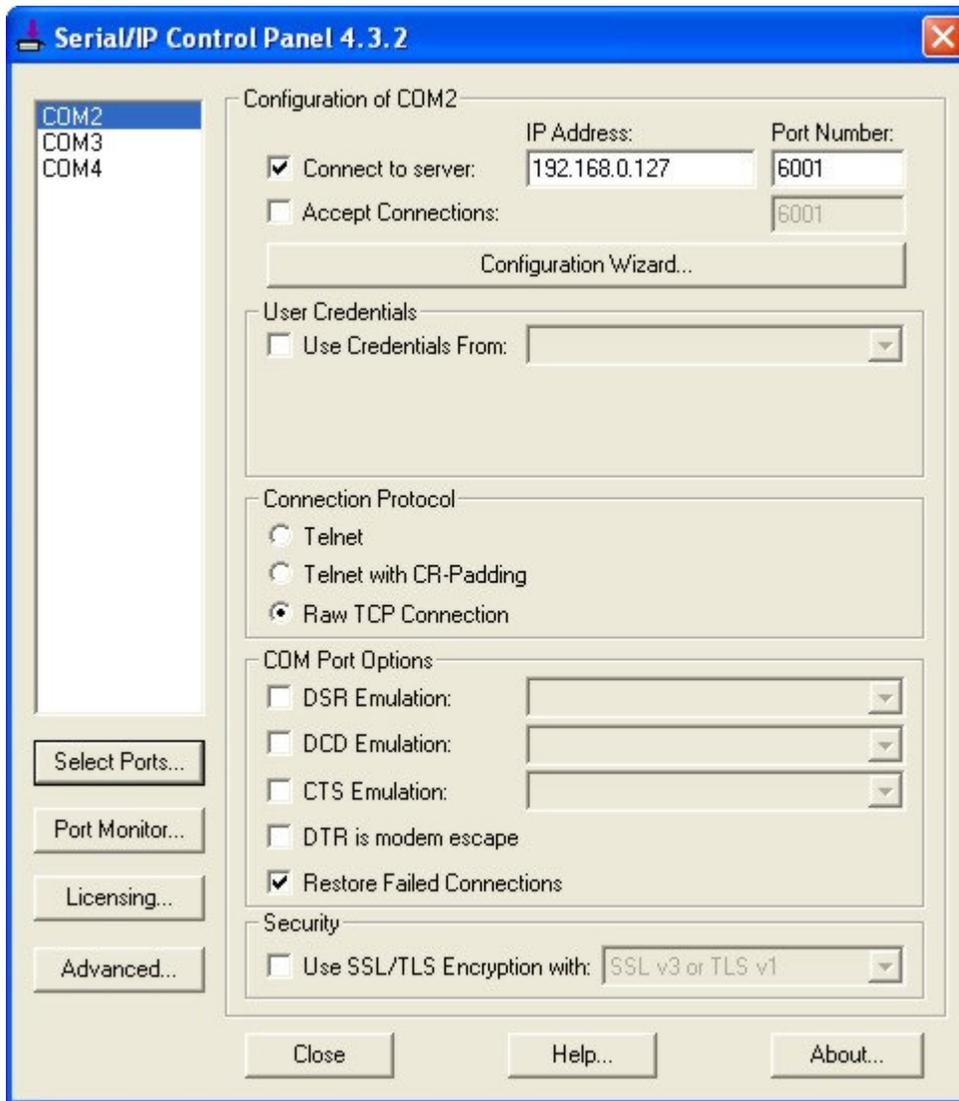


Click Select Ports...button, you will a com port list.



Select the COM port you would like to virtual serial port.
One Network Controller only need assign one port and remember the port you have selected.
You will set the port for T3000 when you want access Network Controller via Internet.

Click OK button on Select Ports screen, then you will see the port you have selected also be displayed at the right part of Serial –IP configuration main screen.



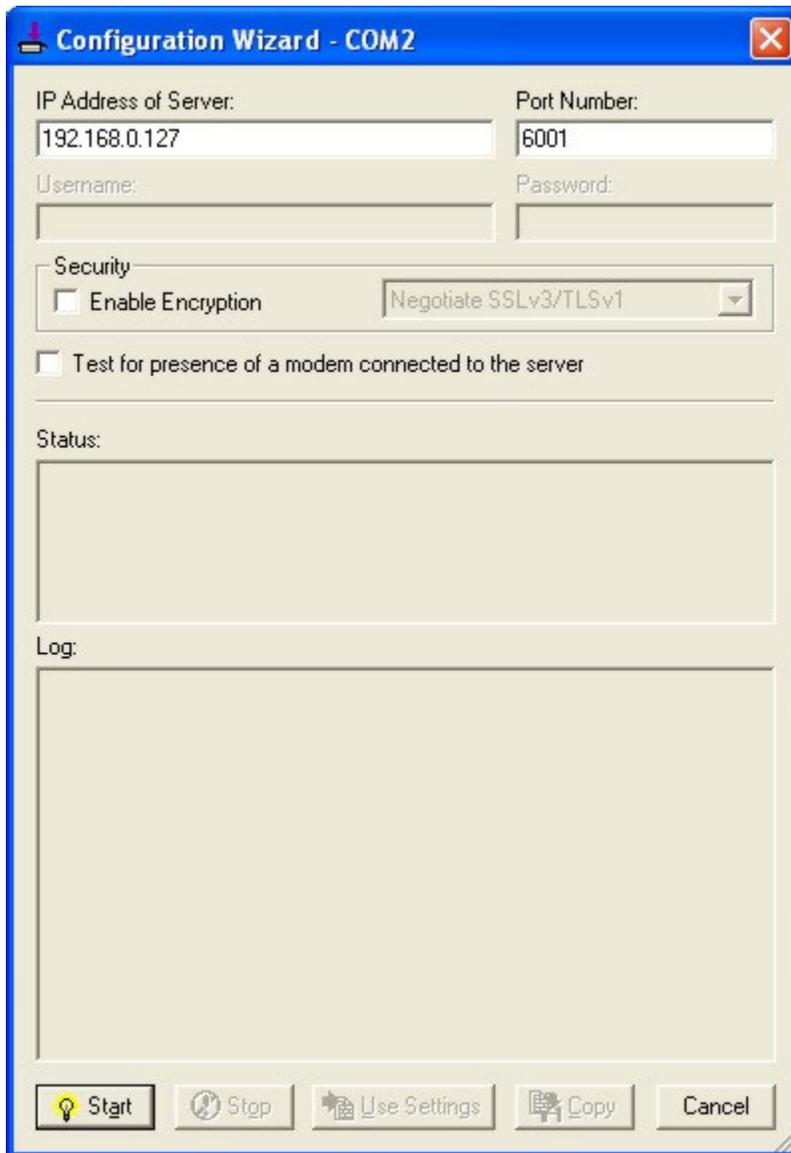
Select one the com port you access Network Controller will use,
The correspond com port configuration frame be active.

Select Connect to server item, input the IP address of Network Controller and
Listening Port of Network Controller.

Select Raw TCP Connection option on Connection Protocol frame.

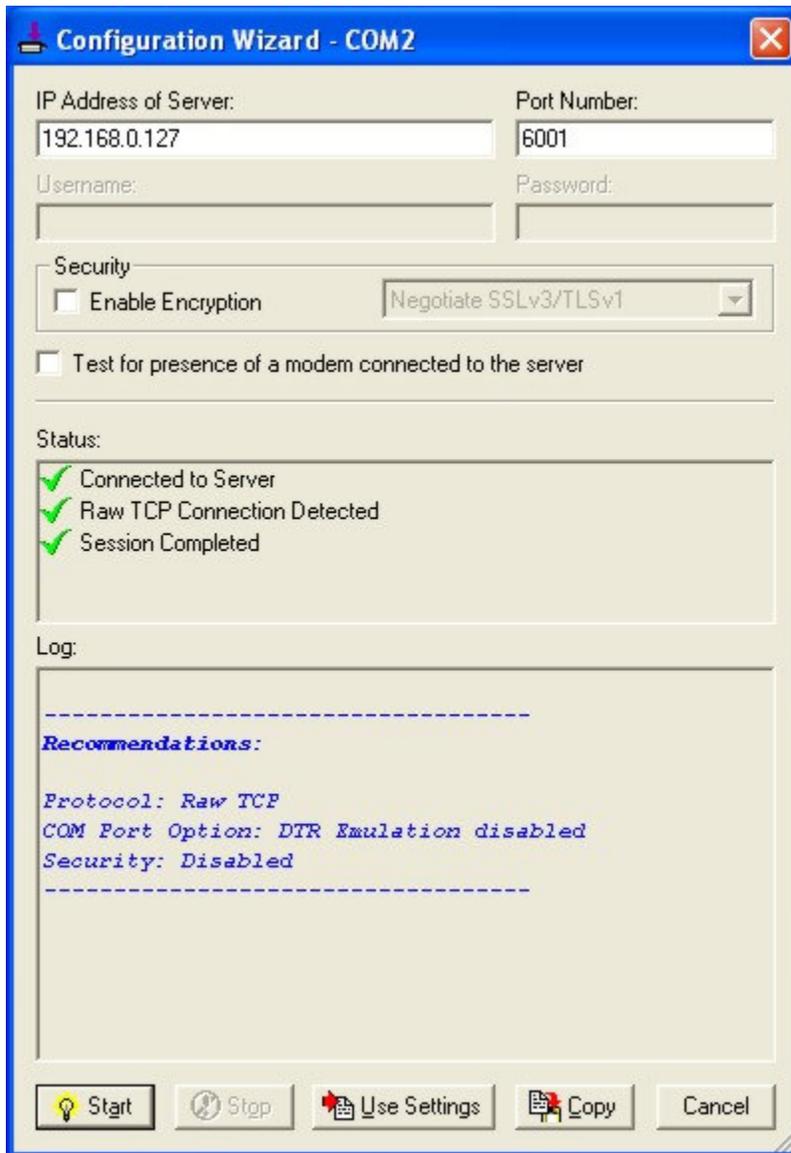
Select Restore Failed Connections on COM Ports Options.

Then click Configuration Wizard ... button go to Configuration Wizard screen.



Click Start button.

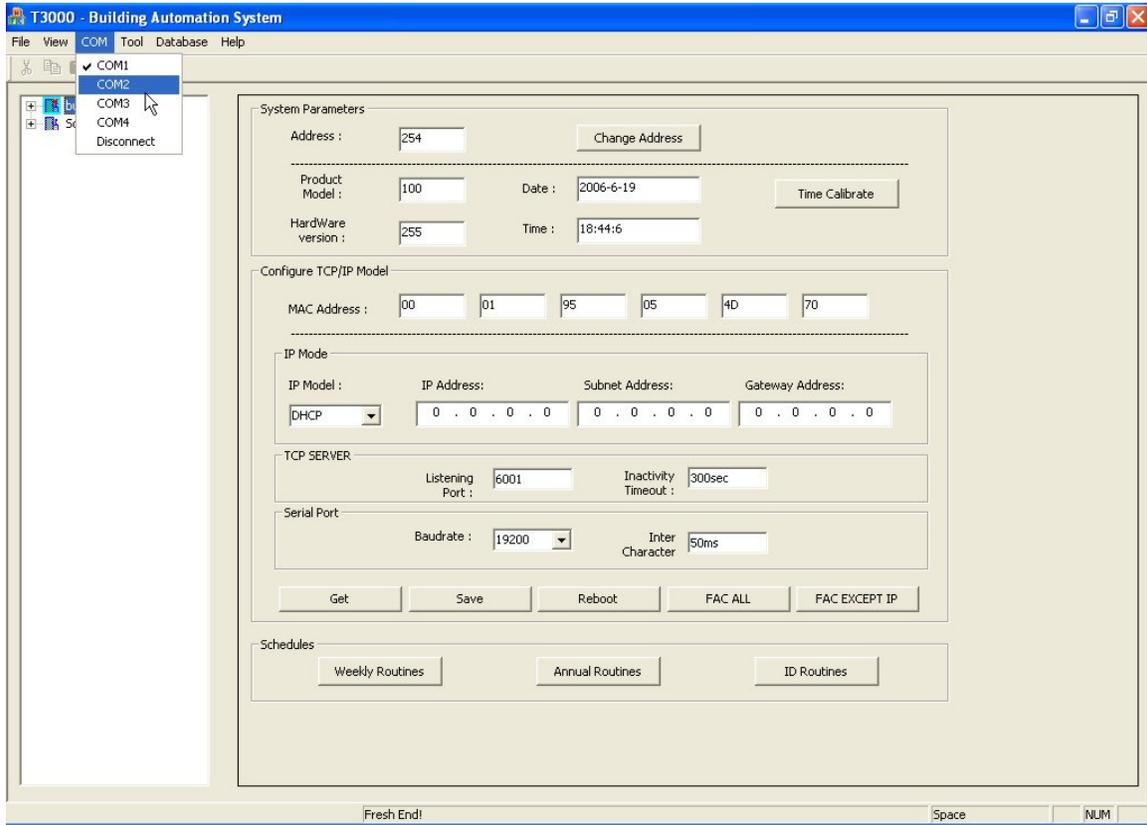
Show these information means you get success.



Click Use Settings to configure next serial port.

If all serial port have been set.

Quit Serial-IP configuration, back to T3000 and select the virtual serial port you have set.



Use this virtual port is same with using normal serial port and do not worry about TCP/IP protocol.



FAQs

Why the ISP LED always light, and the Network Controller can not go to work mode?

Please remove that jumper on Network Controller board after you programme the Network Controller.

Why I can not communicate with MPC but I can access Network Controller by T3000?

Please make sure that the cable between Network Controller and MPC is right. The right sequence is net- to net - ,net+ to net+, GND to GND, no cross.

You can find the MPC and Network Controller by using scan on T3000 if the wiring is right.

Do not worry about baudrate, because the T3000 will try change the baudrate when he is scanning.

Why I can not open the MPC by using schedule.

The Network Controller write 1 to register 184 of MPC to open the MPC,the MPC will go to AUTO mode after received the value.

So ensure that your AUTO table is not all OFF.