

GREENTEL M2M Industrial Cellular Router

Quick Guide

For R200 M2M Industrial Cellular Router

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Announcements

Thank you for choosing our product. GREENTEL R200 series is Machine-to-machine (M2M) industrial cellular router with Din-rail mounting, which works on 2G/3G cellular networks, provides reliable and robust wireless connections.

GREENTEL R200 series is specified for industrial M2M usage. Designed to endure extreme conditions, such as temperatures ranging from -25°C to +70°C and low power consumption.

GREENTEL R200 series also supports the PPTP, L2TP, GPE, IPSec VPN tunnel providing high-grade network security.

Please read this manual carefully before using the product.

Important Safety Information

This product is not intended for use in the following circumstances

- Area(s) where radio transmission equipment (such as cell phone) are not permitted.
- Hospitals, health care facilities and area(s) where cell phones are restricted by law.
- Gas stations, fuel storage and places where chemical are stored.
- Chemical plants or places with potential explosion hazard.
- Any metal surface that may weaken the radio signal level.

Copyright Announcement

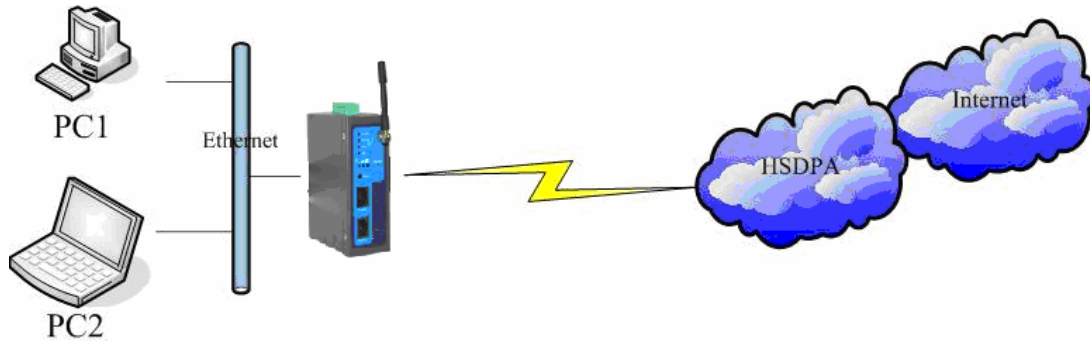
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Information Edition: GQ – A – R200 - 1.0

1. Scenario: Use as Ordinary Router

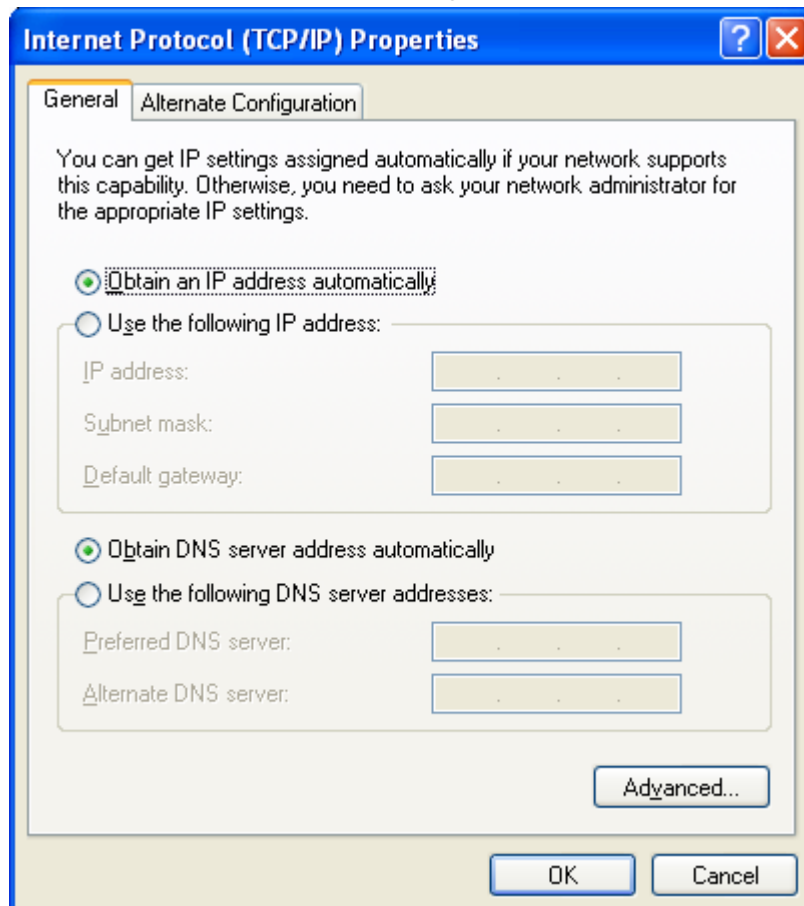


Scenario introduction:

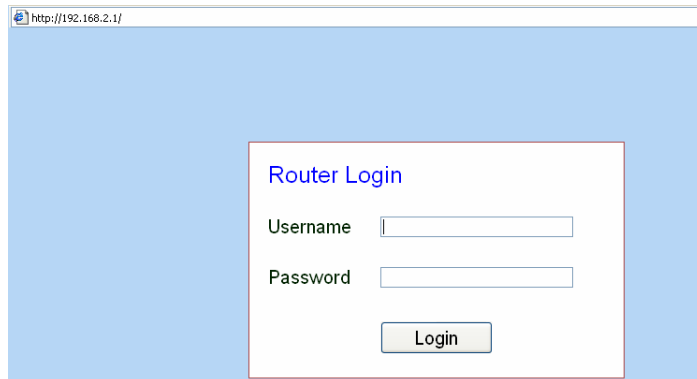
R200 series router can be used as ordinary router, through which users can easily access into the Internet.

Configuration:

R200 has been set as DHCP server as default. Please configure your Ethernet connection as follow, then Router will auto assign IP address 192.168.2.x to your PC:



Open Internet Explorer (or other web browsers), enter the IP address of router in the URL link field, e.g. <http://192.168.2.1> (- default IP of R200).

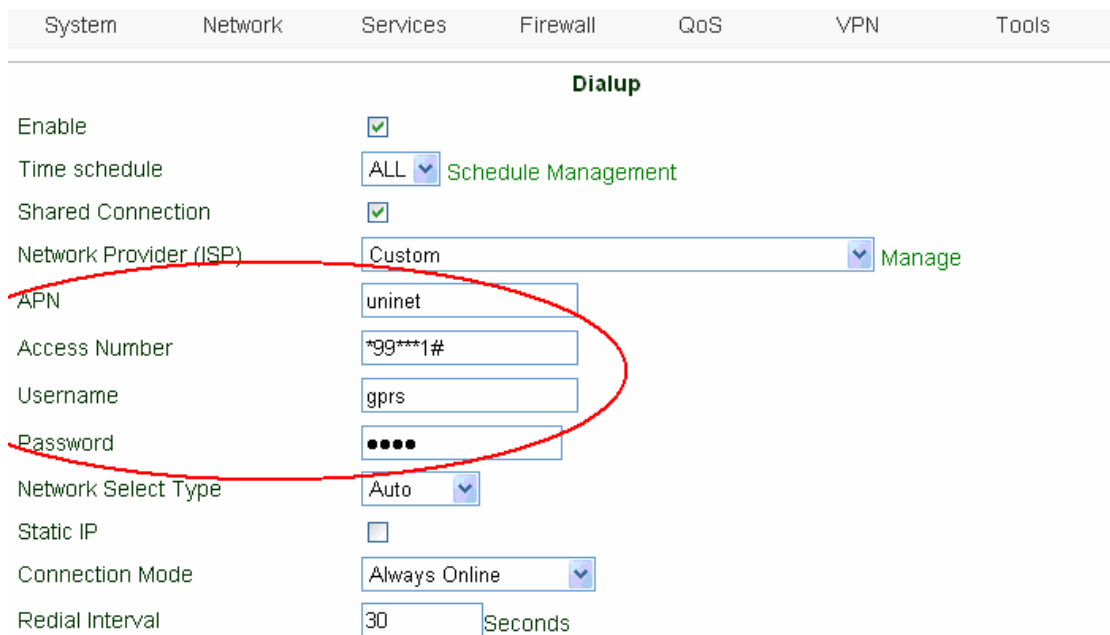


Login

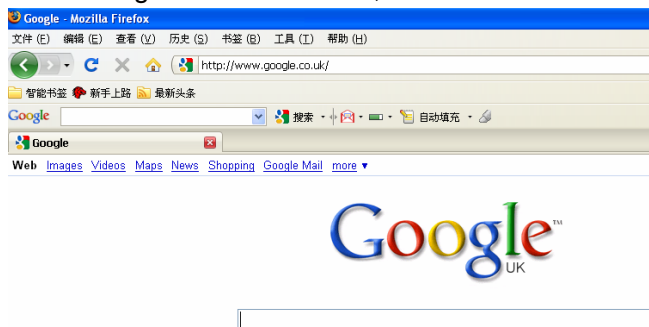
User name: adm

Password: 123456

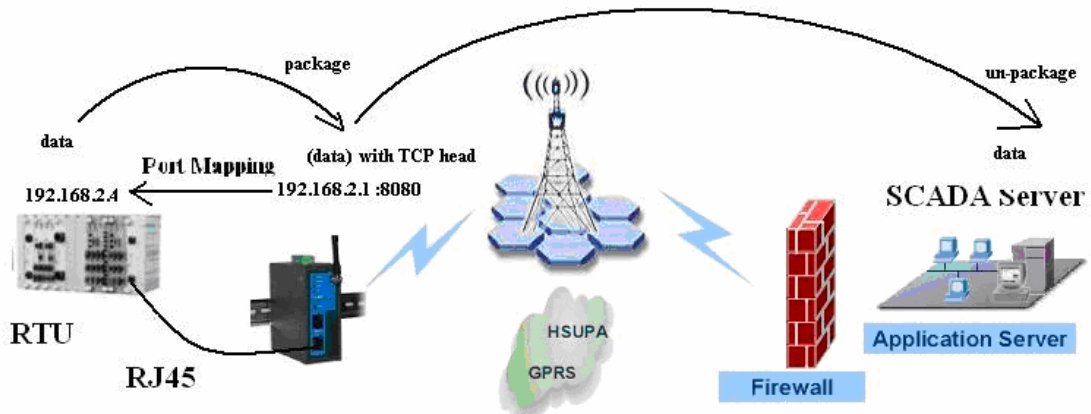
Get network parameters from local ISP, then input in “Network->Dialup”.



After configuration successful, user could access internet via R200.



2. Scenario: Connecting to RTU via Ethernet port



Scenario introduction:

RTU connects to R200 via Ethernet port, RTU sends transparent data to SCADA server via TCP protocol.

The server accesses RTU via 8080 Port of R200.

Data is packaged in R200 as TCP message and then it transmits through internet. It will be unpackaged while reaching SCADA server, which supports transparent TCP protocol.

Configuration in R200:

Firewall->Port Mapping:

Firewall	QoS
Basic	
Filtering	
Port Mapping	
Virtual IP Mapping	
DMZ	
MAC-IP Bundling	

Port Mapping

Enable	Proto	Source	Service Port	Internal Address	Internal Port	Log	Description
<input checked="" type="checkbox"/>	TCP	203.86.43.186/24	8080	192.168.2.3/24	8080	<input type="checkbox"/>	

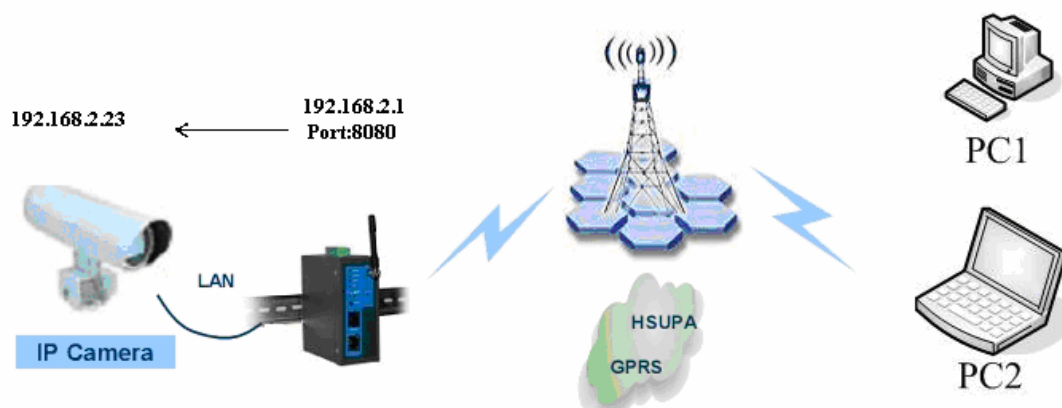
Apply Cancel

select TCP **SCADA Server IP/Netmask, for example: 203.86.43.186/24** **SCADA Port** **RTU address** **RTU port**

Note:

1. The RTU and R200 must be in the same Network Segment. Else, you need to set the function of multiple IP in the R200 configuration web.
2. The Port must not be used for other applications, such as 80 (http), 23 (telnet) and etc. else the Router will ignore the demand of Mapping.
3. If end users want to access RTU via any remote IP, please input "0.0.0.0/0" at "Firewall->Port Mapping->Source".

3. Scenario: Connecting to IP Camera via Ethernet port



Scenario introduction:

IP Camera connects to R200 via Ethernet port, end user can view IP Camera anytime and anywhere.

End user can access IP Camera via 8080 port of R200.

Configuration in R200:

User can configure port mapping or DMZ for this scenario.

Via Port mapping:

Firewall->Port Mapping

Firewall	QoS
Basic	
Filtering	
Port Mapping	
Virtual IP Mapping	
DMZ	
MAC-IP Bundling	

Port Mapping

Enable	Proto	Source	Service Port	Internal Address	Internal Port	Log	Description
<input checked="" type="checkbox"/>	TCP	203.86.43.186/24	8080	192.168.2.3/24	8080	<input type="checkbox"/>	

select TCP End user PC address End user PC port IP Camera address IP Camera port

Note:

1. The IP Camera and R200 must be in the same Network Segment. Else, you need to set the function of multiple IP in the R200 configuration web.
2. The Port must not be used for other applications, such as 80 (http), 23 (telnet) and etc. else the Router will ignore the demand of Mapping.
3. If end users want to access IP Camera via any remote IP, please input "0.0.0.0/0" at "Firewall->Port Mapping->Source".
4. If end users want to access IP Camera anywhere anytime via public IP networks, then SIM Card in R200 should get public IP from ISP also. Please contact with local ISP for how to get public IP in SIM Card.

Via DMZ:

Firewall->DMZ

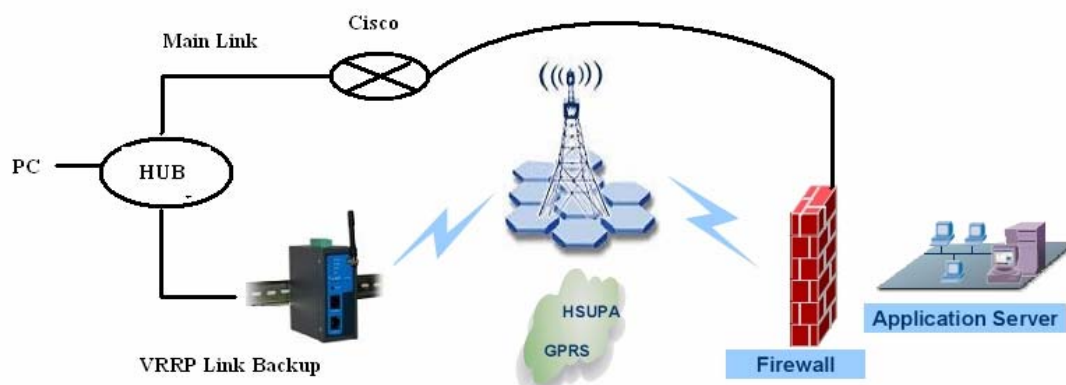
DMZ

Enable DMZ	<input checked="" type="checkbox"/>	
DMZ Host	192.168.2.23	Fill in the blank with the IP of IPC
Source Address Range	<input type="text"/>	(Optional Example: "1.1.1.1", "1.1.1.0/24", "1.1.1.1 - 2.2.2.2")

Note:

After enable DMZ, user could remote login IP Camera, but could not remote login R200.

4. Scenario: VRRP backup



Scenario introduction:

It is a VRRP scenario (Virtual Router Redundancy Protocol) with R200 and Cisco routers. VRRP ensures that important gateways are available on a reliable basis. The protocol provides a type of backup/redundancy function. Both devices are configured with a functioning Internet connection.

Requirements:

Two devices that support the VRRP protocol.

Configuration in R200:

Services->VRRP:

VRRP	
Enable	<input checked="" type="checkbox"/>
Group ID	1
Priority	10
Advertisement Interval	60 Seconds
Virtual IP	
Authentication Type	none

Apply Cancel

Fill in the blank with follow parameters:

1. **Enable**: select enable.
2. **Group ID**: the same configured in Cisco.
3. **Priority**: Normally set lower than Cisco, to set Cisco as the first choose for link;
4. **Advertisement Interval**: If no Advertisement package received from Cisco after the interval, R200 VRRP will be enabled.

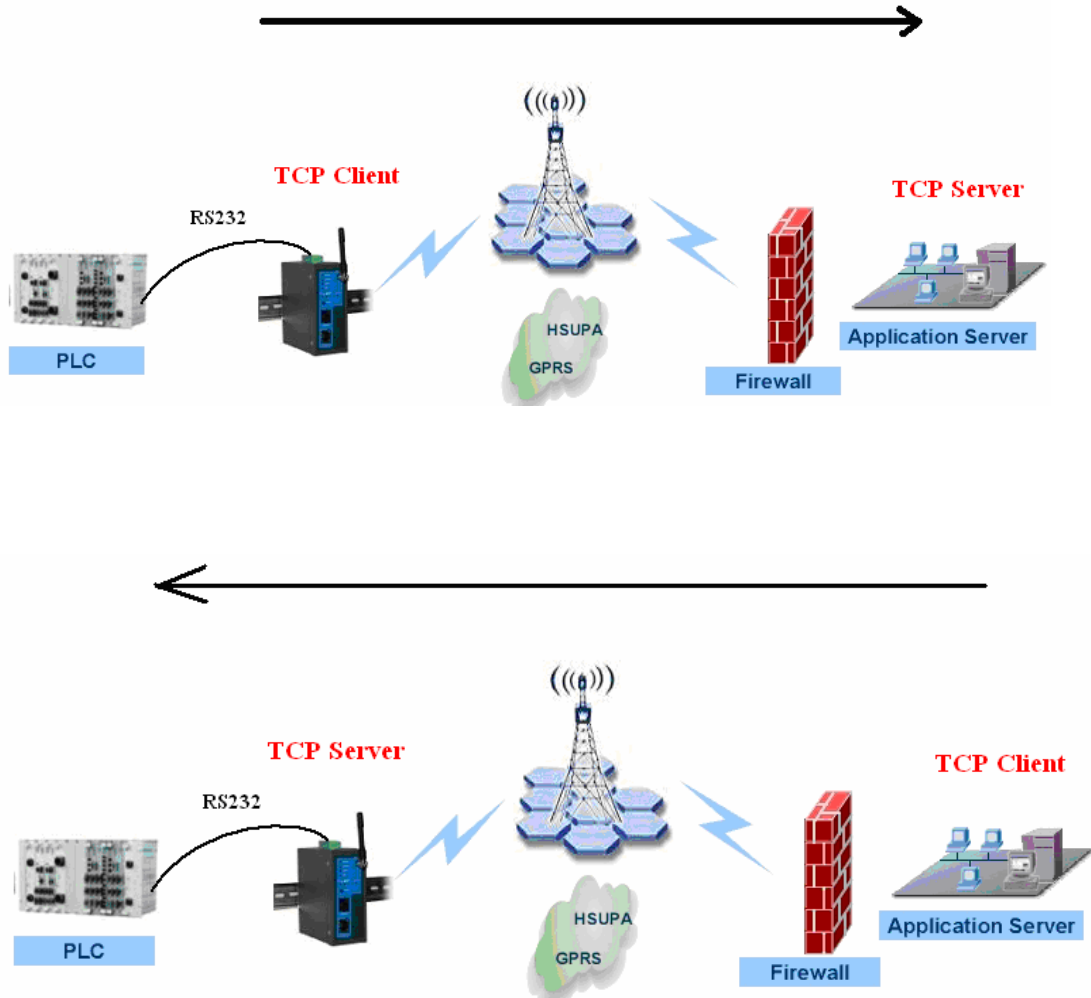
Then click "Apply".

5. **Authentication Type:** None or choose the same as Cisco

Configuration in Cisco:

```
Router> en
Router#conf t
Router(config)# int fa0/1          // the interface of router
Router(config)# vrrp 1 priority 200 //set a bigger number than in R200,
//The "1" stands for Group 1, the same as R200
Router(config)# vrrp 1 ip 10.5.1.100 //Virtual IP
Router(config)# vrrp 1 timer advertise 60 //advertisement interval, seconds
Router(config)# vrrp 1 preempt     //set the main router according to //priority
Router(config)# .....
..... Finished.
```

5. Scenario: Connecting to RTU via Serial RS232 port



Scenario introduction:

RTU connects to R200 via serial RS232 port, RTU communicates with SCADA server via TCP protocol.

R200 supports both TCP client or server mode.

R200 configure as TCP client and SCADA server configure as TCP server:

Configuration in R200:

System->Serial Port:

System	Net
Basic Setup	
Time	
Serial Port	

Serial Port	
Baudrate	19200 ▾
Data Bits	8 ▾
Parity	None ▾
Stop Bit	1 ▾
Hardware Flow Control	<input type="checkbox"/>
Software Flow Control	<input type="checkbox"/>

Apply Cancel

Note:

These parameters must match devices (e.g.: RTU) connected with R200.

Services->DTU

Services	Fire
DHCP Service	
DNS Relay	
VRRP	
Device Manager	
DTU	

System	Network	Services	Firewall	QoS
DTU				
Enable	<input checked="" type="checkbox"/>			
DTU Protocol	Transparent <input type="button" value="v"/>			
Protocol	TCP <input type="button" value="v"/>			
Work Mode	Client <input type="button" value="v"/>			
Frame Interval	100 mseconds			
DTU ID	<input type="text"/>			

Fill in the blank with follow parameters:

1. **Enable**: select enable.
2. **DTU Protocol**: Transparent.
3. **Work Mode**: Client.
4. **Frame Interval**: the time interval to divide frames.
5. **DTU ID**: provided by user, for management.

R200 configure as TCP server and SCADA server configure as TCP client:

Configuration in R200:

System->Serial Port:

System	Net
Basic Setup	
Time	
Serial Port	

Serial Port

Baudrate	19200 ▾
Data Bits	8 ▾
Parity	None ▾
Stop Bit	1 ▾
Hardware Flow Control	<input type="checkbox"/>
Software Flow Control	<input type="checkbox"/>

Apply
Cancel

Note:

These parameters must match devices (e.g.: RTU) connected with R200.

Services->DTU

Services	Fire
DHCP Service	
DNS Relay	
VRRP	
Device Manager	
DTU	

DTU

Enable	<input checked="" type="checkbox"/>	1. Select "Enable"
DTU Protocol	Virtual-Serial ▾	2. Select "Virtual-Serial"
Protocol	TCP ▾	3. Select the protocol supported by center SCADA;
Work Mode	Server ▾	4. Select "Server";
Listening Port	502	5. Set the same as SCADA;
Frame Interval	mseconds	6. Interval for cutting frames

Apply
Cancel

Fill in the blank with follow parameters:

1. **Enable**: select enable.
2. **DTU Protocol**: Virtual-Serial.
3. **Work Mode**: Server.
4. **Listening Port**: The same as SCADA server
5. **Frame Interval**: the time interval to divide frames.
6. **DTU ID**: provided by user, for management.

6. Scenario: Connect on Demand->Triggered by Call

Scenario introduction:

Call the SIM card number if user needs to wake up R200.

Configuration in R200:

Network->Dialup



Set "Connecting Mode" to "Connect on Demand"

Connection Mode

Set the parameters as follow:

Connection Mode

Triggered by Data

Triggered by Call

Triggered by SMS

Max Idle Time Seconds

Then user could call R200 to take it up.

Scenario introduction:

Control R200 online/offline via SMS.

Configuration in R200:

Network->Dialup

Network	Set
Dialup	
LAN	
DNS	
DDNS	
Static Route	

Set "Connecting Mode" to "Connect on Demand"

Connection Mode

Set the parameters as follow:

Connection Mode	<input type="text" value="Connect On Demand"/>
Triggered by Data	<input type="checkbox"/>
Triggered by Call	<input type="checkbox"/>
Triggered by SMS	<input checked="" type="checkbox"/>
SMS Connect Command	<input type="text" value="connect"/> (English Only)
SMS Disconnect Command	<input type="text" value="disconnect"/> (English Only)
Max Idle Time	<input type="text" value="0"/> Seconds
Redial Interval	<input type="text" value="30"/> Seconds

Click "Apply", then you can send the SMS "connect"/"disconnect" by your mobile phone to connect/disconnect R200.

Scenario introduction:

If there's data, R200 will be wake up, else, after the idle interval, it sleeps.

This scenario could be used in connecting to POS machine, when there is a transaction, R200 will be wake up and after the idle interval, it sleeps.

Configuration in R200:

Network->Dialup

Network	Set
Dialup	
LAN	
DNS	
DDNS	
Static Route	

Set "Connecting Mode" to "Connect on Demand"

Connection Mode

Set the parameters as follow:

Connection Mode	<input type="text" value="Connect On Demand"/>
Triggered by Data	<input checked="" type="checkbox"/>
Triggered by Call	<input type="checkbox"/>
Triggered by SMS	<input type="checkbox"/>
Max Idle Time	<input type="text" value="0"/> Seconds

Then click "Apply".