TK700 Series User's Manual

Forth Edition, March, 2011

(For Firmware Version: 1.3.4.v2101)

wireless | m2m-networks | sensors

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vision meets solution

TK700 Series User's Manual

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Release Notes

2011. 3. 24: Add description for function:

1. WOL (Wakeup Over LAN) at "Networks"→"LAN";
2. SMS control (reboot/show status) at "Service"→"SMS";
3. "User+X.509" mode for OpenVPN client;

Add Notice:

1. WAN/LAN settings: don't set the WAN/LAN IP as 192.168.3.1 (the default IP of DMZ port);

Contents

I

Introduction to TK700 Series

- Overview
- Product Models
- Product Features & Specifications
- Package Checklist

1.1 Overview

TK700 Series industrial grade routers provide users with stable and high speed connection between remote devices and customer's center via 2.5G/3G networks. They allow wide voltage power supply (9-48V DC), large range operating temperature from -25°C to 70°C (-10 ~ 158F)/ humidity: 95% RH, and fully satisfy various EMC verifications, which ensure stability and reliability under harsh industrial conditions. The TK700 can be placed on a desktop or DIN-mounted.

TK700 Series products support VPN (IPSec/PPTP/ L2TP/GRE/SSL VPN), which create high-security links between remote equipment and customer's center.

In Addition, TK700 Series products support the Device Manager remote device manage platform, which realizes remote operation including remote control, remote monitor, parameters configure, firmware upgrade, log/alarm management, information statistics/display, batch configuration/update and etc.

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.

RF safety distance

- For GPRS router, the compliance boundary distance is r=0.26m for GSM 900MHz and r=0.13m for DCS 1800 MHz.
- For HSUPA router, the compliance boundary distance is r=0.26m for GSM 900MHz and
- r=0.13m for DCS 1800 MHz, r=.0.094 for WCDMA 900MHz, r=0.063 for WCDMA 2100MHz.

Warning

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WEEE Notice

The Directive on Waste Electrical and Electronic Equipment (WEEE), which entered into force as European law on 13th February 2003, resulted in a major change in the treatment of electrical equipment at end-of-life.
The purpose of this Directive is, as a first priority, the prevention of WEEE, and in addition, to promote the reuse, recycling and other forms of recovery of such wastes so as to reduce disposal.

The WEEE logo (shown at the left) on the product or on its box indicates that this product must not be disposed of or dumped with your other household waste. You are liable to dispose of all your electronic or electrical waste equipment by relocating over to the specified collection point for recycling of such hazardous waste. Isolated collection and proper recovery of your electronic and electrical waste equipment at the time of disposal will allow us to help conserving natural resources. Moreover, proper recycling of the electronic and electrical waste equipment will ensure safety of human health and environment.

For more information about electronic and electrical waste equipment disposal, recovery, and collection points, please contact your local city centre, household waste disposal service, shop from where you purchased the equipment, or manufacturer of the equipment.

1.2 Package Checklist

We put each TK 700 cellular router in a box with standard accessories. Additionally, there're optional accessories can be ordered. When you receive our package, please check carefully, and if there're items missing or appearing to be damaged, please contact with your Welotec sales representative.

Items in package include:

Standard Accessories:

Accessories	Description
TK700 Series Wireless Router	1
Cable	1 Cross line,CAT-5,1.5M
Antenna	5m Cellular Antenna
Power Supply	
	Power Adapter, 100-265V AC in, 12V DC out (included in TK7xx)
	Power plug, European Standard (included in TK7xx)

1.3 Product Features

1.3.1 Interfaces

WAN

Cellular WAN:

Band Options:

HSUPA /HSDPA/WCDMA
850/900/1900/2100MHz
GSM/GPRS/EDGE
850/900/1800/1900MHz

Ethernet WAN:

Ethernet: 10/100 Mbps, RJ45 connector, Auto MDI/MDIX
Magnetic Isolation Protection: 1.5 KV built-in

LAN

TK701:

Number of Ports: 1
Ethernet: 10/100 Mbps, RJ45 connector, Auto MDI/MDIX
Magnetic Isolation Protection: 1.5 KV built-in

TK704:

Number of Ports: 4
Ethernet: 10/100 Mbps, RJ45 connector, auto MDI/MDIX
Magnetic Isolation Protection: 1.5 KV built-in

Serial

A. Serial Type: RS232/485
B. Data bit: 5/6/7/8
C. Stop bit: 1/2
D. Check bit: N/O/D
E. Baud rate: 1,200bit/s~ 115,200bit/s

SIM Interface

SIM Control: 3 V

1.3.2 Functions

PPP

Supported VPDN/APN, fast access to virtual private dial-up network (VPDN) provided by mobile operator, ensure high-security data transmission.

Support PPPoE (Point to Point Protocol over Ethernet) Protocol.

Support CHAP/PAP/MS-CHAP/MS-CHAP V2 authorization

Support Connection Detection, auto-recovery, auto-link, ensure reliable communication.

Support On-demand connection, SMS Activity

Dynamic IP

Support DHCP, applied as Server/Client

Dynamic DNS

Support Dynamic DNS-IP Binding

Flux Management

Support rate limiting,

Firewall Function

Package filtering

Port Mapping

Virtual Address Mapping

DMZ zone

MAC addresses binding.

Route function

Support Static Routing Table

VPN

IPSec VPN

L2TP VPN

PPTP VPN

GRE

OpenVPN

Link Backup

VRRP

Support VRRP protocols, realizing immediate link backup

Hot Link Backup

Support Wireless Hot Link Backup for cable link via only one device

DNS Forwarding

Support DNS Forwarding, support DNS record

Network tools

Support Ping, Trace Route and Telnet

Wakeup Over LAN (WOL)

Support Wakeup over LAN, to wakeup industrial PC over Eth. after receives SMS.

RSSI + Cell ID Display

1.3.3 Environmental Limits

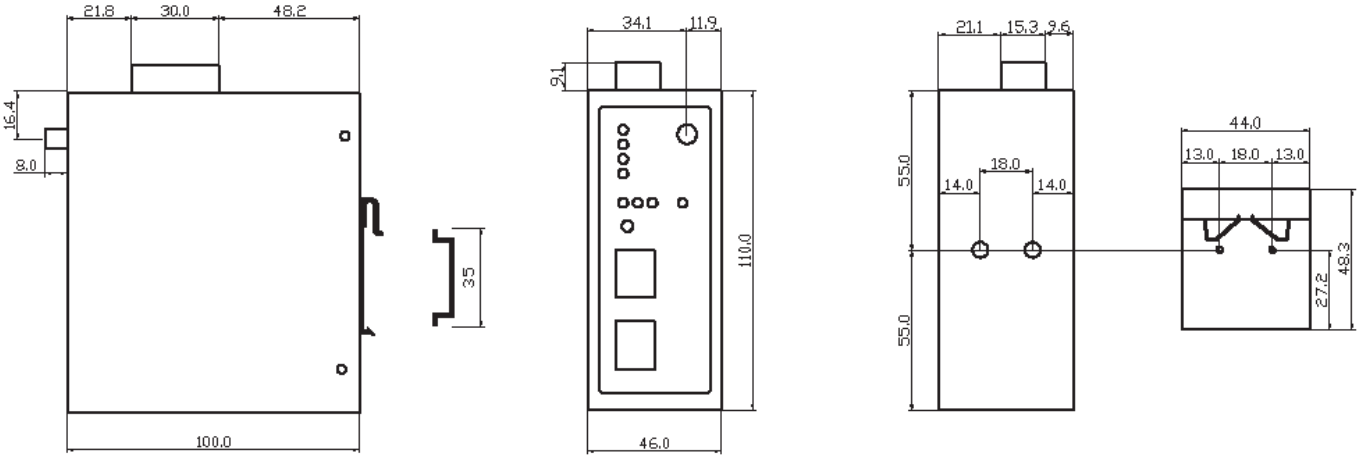
Operating Temperature: -25 to 70°C (-10 to 158°F)
Operating Humidity: 5 to 95% RH
Storage Temperature: -40 to 85°C (-40 to 167°F)

1.3.4 Power Requirements

Power Inputs: 1 terminal block, including power jack and serial.
Input Voltage: 9 to 48 VDC

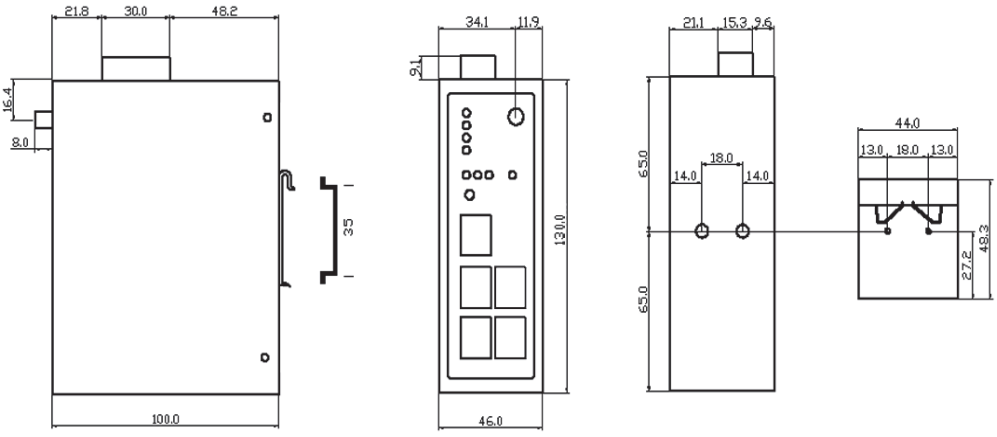
1.3.5 Physical Characteristics

Housing: Steel, providing IP30 protection
Weight: 490g
Dimensions (mm)
TK701:



Side View DIN Rail Kit Front View Rear View DIN Rail Kit

TK704:



Side View DIN Rail Kit Front View Back View DIN Rail Kit

1.3.6 Advanced Industrial Features

Physical Characteristics

Housing: Metal, IP30

EMC Features

ESD: EN61000-4-2, level 4

Surge: EN61000-4-5, Level 3

Electric Fast Transient/burst: EN61000-4-4, Level 4

RF Electromagnetic Field Immunity: EN61000-4-3, Level 3

RF conducted interference: EN61000-4-6, Level 3

Damped oscillation Immunity: EN61000-4-12, Level 3

Power-frequency electromagnetic fields Immunity: EN61000-4-8, Level 5

Anti-shock: IEC60068-2-27

Drop: IEC60068-2-32

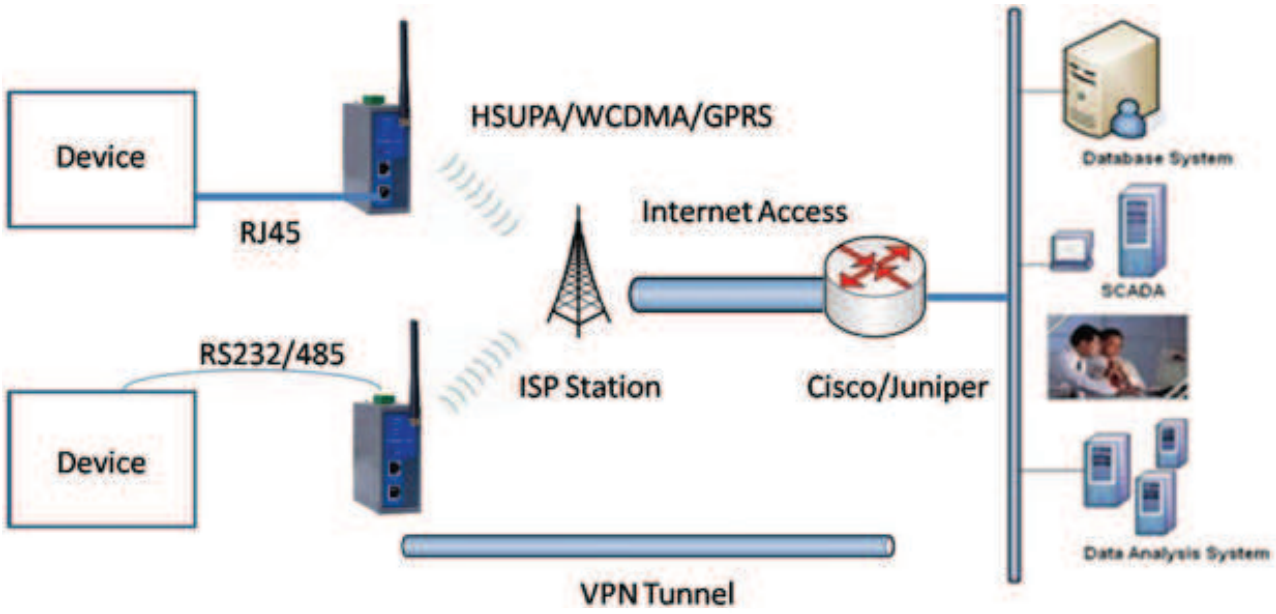
Vibration: IEC60068-2-6

II

Quick Installation Guide

- Typical Application
- Panel Layout
- Quick Connect to Internet
- Quick IPSec VPN Configuration
- Reset to Factory Defaults

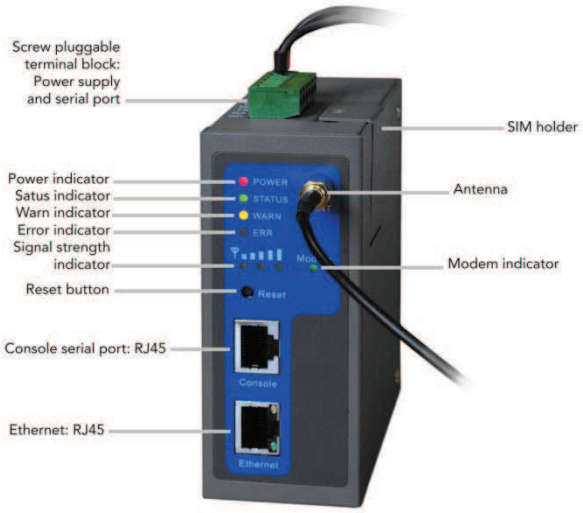
2.1 Typical Application



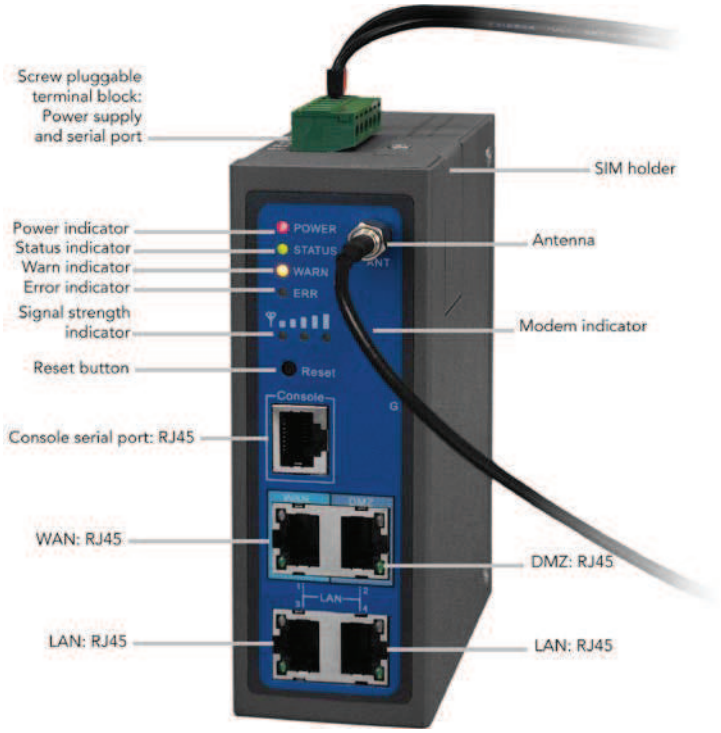
TK700 Series can be used to connect your device (with RS232/485/Ethernet Interface) to internet via GPRS/HSUPA cellular. Meanwhile, to ensure the security and access, TK700 Series support VPN, enabling remote access and secure data transmission through internet.

2.2 Panel Layout

TK701:



TK704:



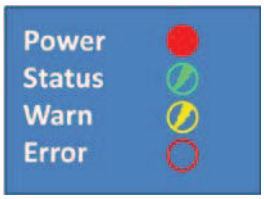
Interface	Description
Power Interface	Access 9-48 V DC Power Supply
Serial	Access to the serial line, realizing
Ethernet Ports	One 10/100Base-TX RJ45 Port TK701X Four 10/100Base-TX RJ45 Ports, TK704X
ANTENNA	2.5G/3G antenna
SIM Card Connector	Put SIM card

Description of LED

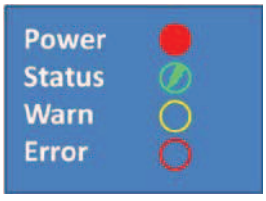
Legend: On-- ● **Off--** ○ **Blink--**

Power on

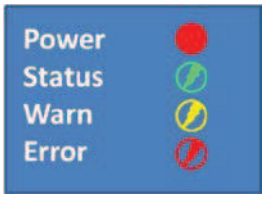
Start to run firmware



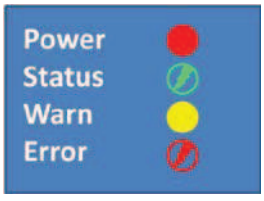
Begin dial to Internet



Connect to internet



Upgrading firmware



Restore factory default

Signal Status LED Description

----- Signal: 1-9 (bad signal level, route cannot work, please check the antenna and local signal level)

------ Signal: 10-19 (Router work normally under this signal level)

------ Signal: 20-31 (Perfect signal level)

2.3 Quick Connection to Internet

2.3.1 Insert SIM Card

Open TK Router SIM/UIM card case at the button, insert the SIM card and close the case.

2.3.2 Antenna Installation

After install the TK700, connect the interface of enhanced antenna and the interface of skin antenna and screw closely. Put the amplifier of enhanced antenna to where there receives good signal.

Attention: The position and angle may influence the quality of signal.

2.3.3 Power Supply

Link the power supply in the product package with TK Router, watch where the TK Router Power LED on the panel is light up. If not, please connect with Welotec for technical supports.
You can configure TK700 after the Power LED lights up.

2.3.4 Connect

Link the TK700 with PC:

(1) Using the cable to link TK700 with PC;

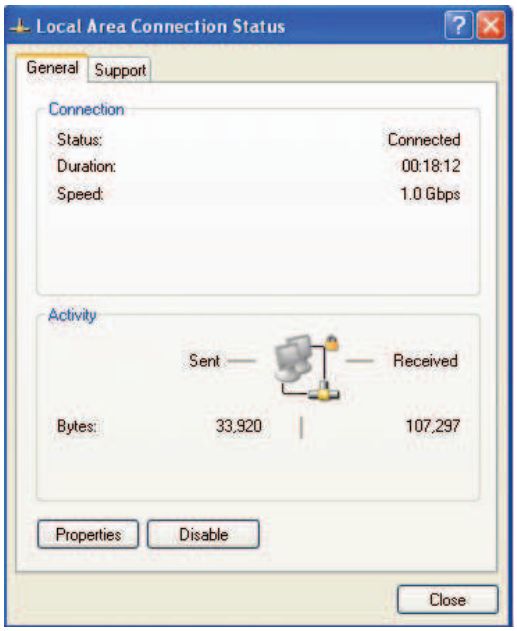
(2) After the connection, you can see one LED of RJ45 Interface turns green and the other flashes.

2.3.5 First Connect TK Router with Your PC

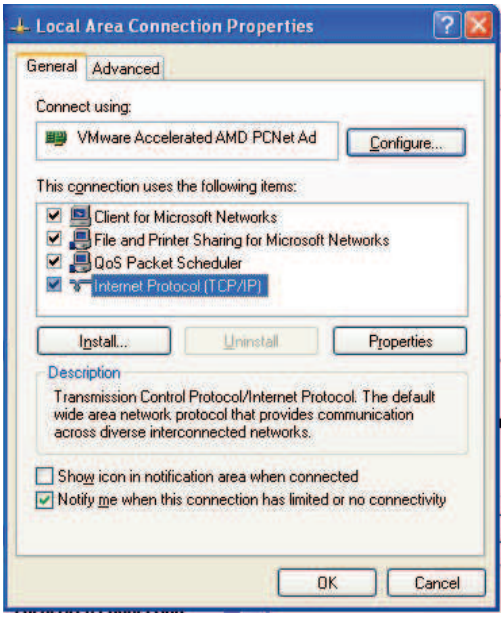
TK700 Router can auto-distribute IP address for PC. Please set the PC to automatically obtain IP address via DHCP. (Based on the Windows operation system):

1) Open "Control Panel", double click "Network Connections" icon, and enter "Network Connections" Screen.

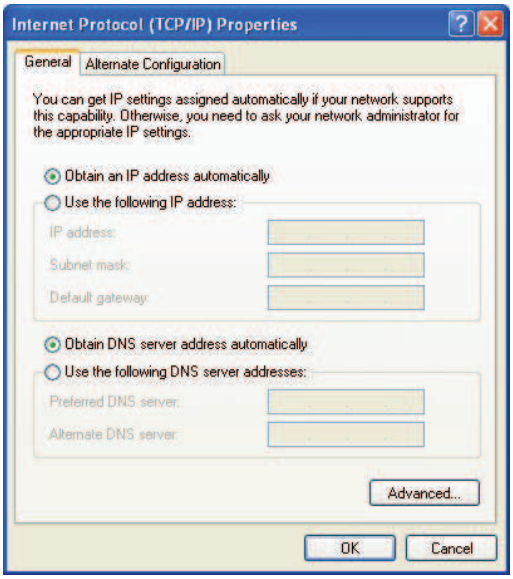
2) Double click "Local Area Connection", enter "Local Area Connection Status" screen:



3) Click "Properties", enter "Local Area Connection Properties" screen



Choose "Internet Protocol (TCP/IP)", click "properties" button, ensure your PC can obtain IP and DNS address automatically. (Or you can set your PC in the subnet: 192.168.2.0/24, for example, set IP: 192.168.2.10, Net Mask: 255.255.255.0, Default Gateway: 192.168.2.1)

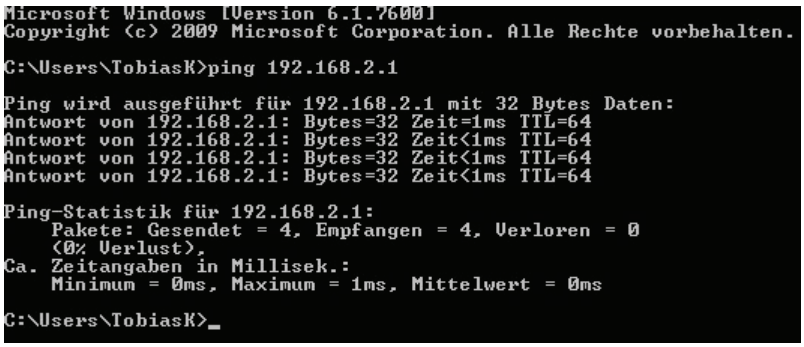


Click "OK", TK Router will allocate an IP address: 192.168.2.X, and a gateway: 192.168.2.1(the default address of TK700).

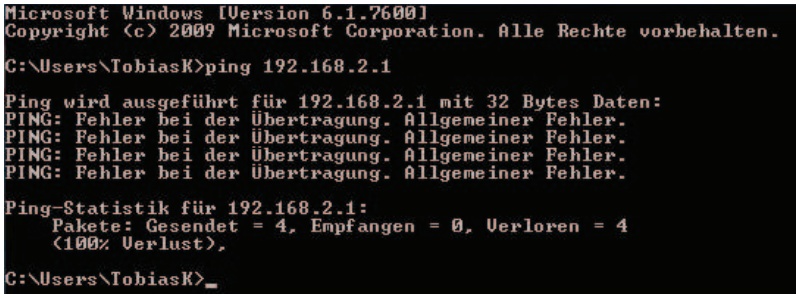
After configure TCP/IP protocols, you can use ping command to check whether the link between PC and Router is built correctly. There is an example to execute Ping command under Windows XP as below:

Ping 192.168.2.1

If the screen shows:



Then the link between the PC and Router is correct connected. Else if it shows:

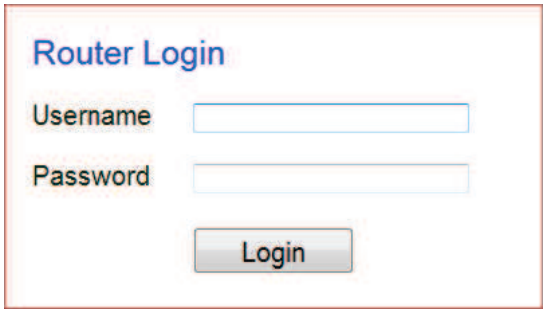


Then the connection seems not build, and you need to check thoroughly following the former instructions.

2.3.6 Start to configure your TK Router 700(Optional)

After you have finished the former steps, you can configure the Router:

1) Open IE browser, input the default IP address of the Router: http://192.168.2.1, you can see the login web below:



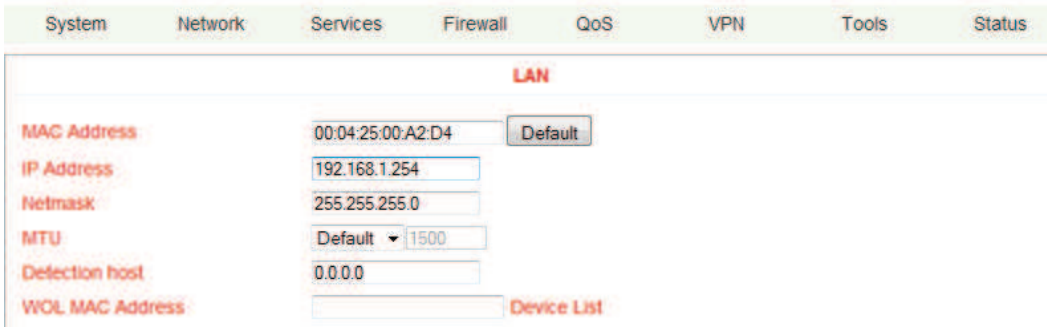
Input "username" (default: adm) and the "password" (default: 123456), and then click "login" to enter the operation screen.

2) Change the IP configuration:

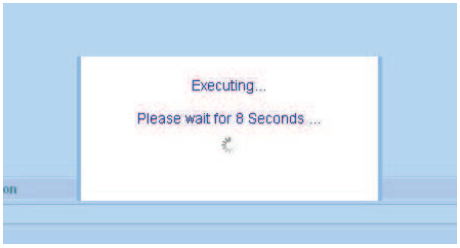
Attention: After configuration, please click "apply" to activate your configuration.

If you want to set your own IP of TK Router 700, please follow the instructions below:

Click "Network"=>"LAN", change the IP address to 192.168.1.254:



3) Click "Apply", then you will see:

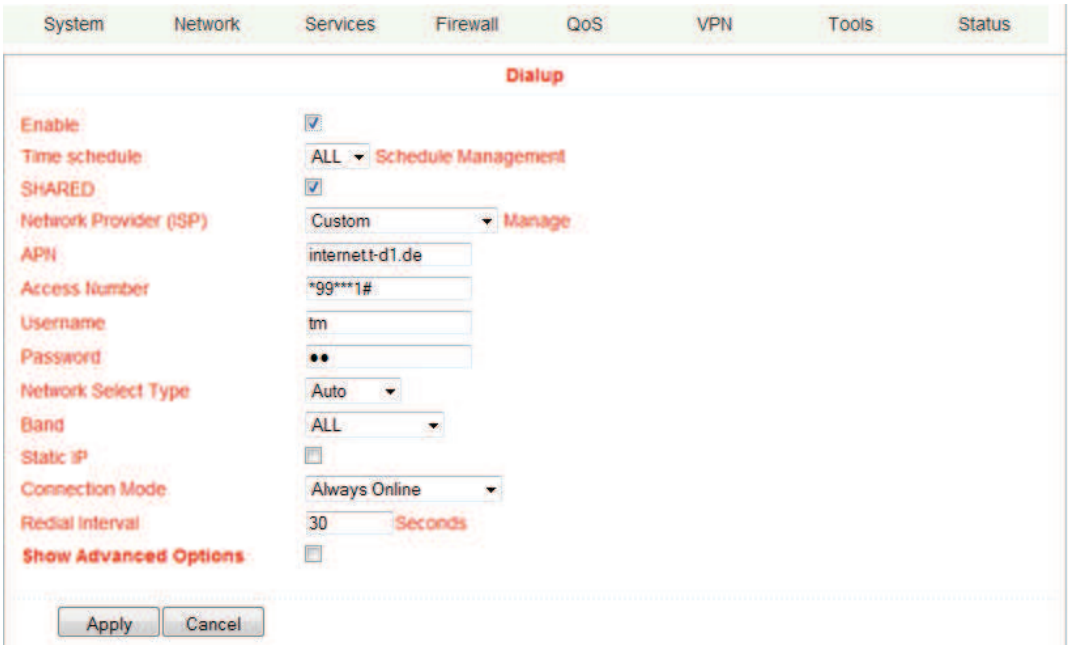


Now the IP address of TK700 has been reset, and in order to enter the configuration web, you need set your PC in the same subnet, for example: 192.168.1.10/24 then input the changed IP address (192.168.1.254) in your IE Browser.

2.3.7 Connect TK Router with Internet

Following the configuration steps below to enable TK700 to connect with the internet.

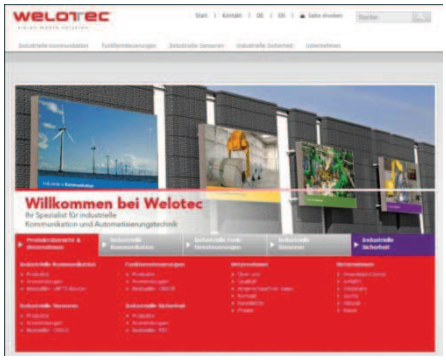
Click "Network"=>"Dialup", enter dialup configuration web:



Please check the APN, Dialup Number, Username and Password:

Dialup Number, Username and Password are provided by local mobile operator. You can contact them for more details.

After correct configuration, TK Router 700 can now connect with Internet. Open IE Browser, input www.welotec.com, you can see the Welotec web as below:

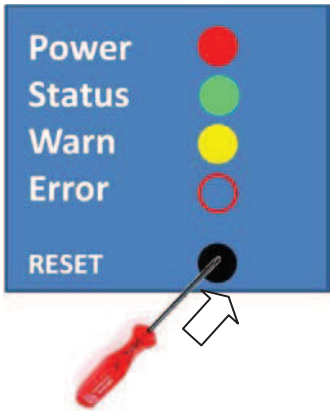


2.4 Reset to Factory Defaults

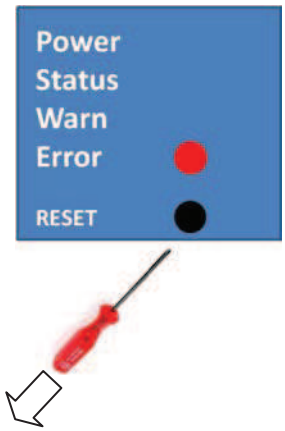
2.4.1 Hardware Method

Legend: On-- **Off--** **Blink--**

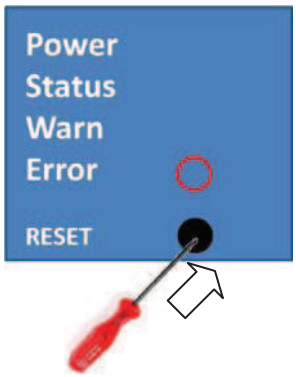
1) Push RESET button while powering on TK700:



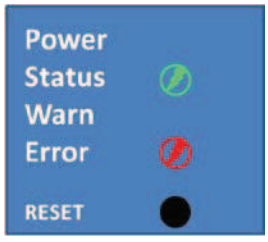
2) When you see ERROR LED turns on (about 10 seconds after powering on), stop push RESET button:



3) After a few seconds, the ERROR LED then turns off, now push RESET button again:



4) Then you will see ERROR and STATUS blinking, which means reset to factory defaults successfully!



Factory default settings:
IP: 192.168.2.1
Net Mask: 255.255.255.0
Serial parameter: 19200-8-N-1

2.4.2 Web Method

1) Login the web interface of TK700, select "System"→"Config Management":

2) Click "Restore default configuration" to Reset TK700.

III

Advanced Configuration

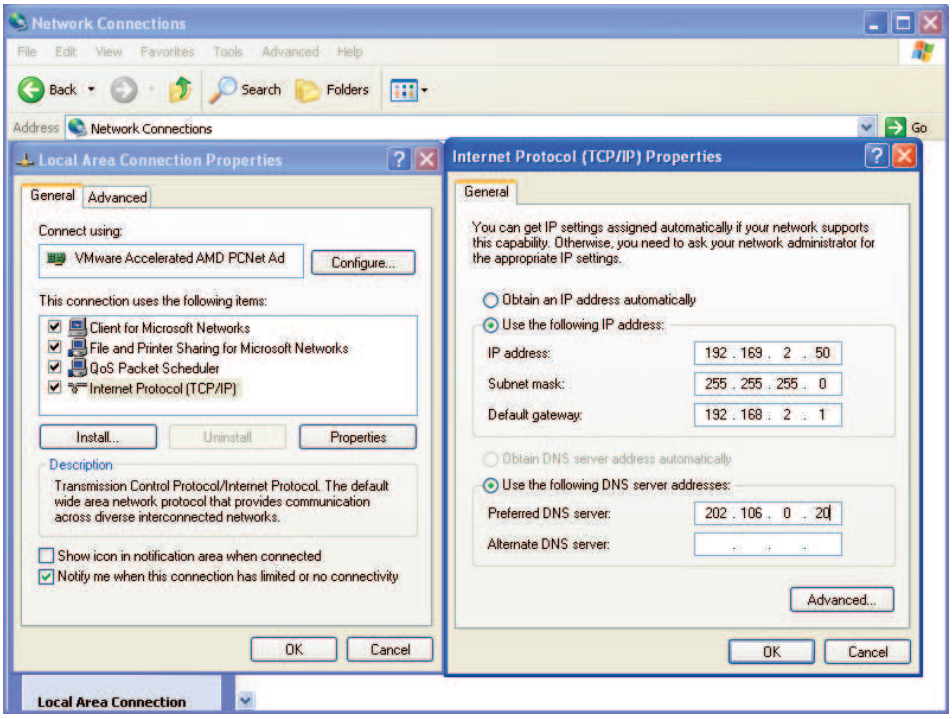
- Configuration on Web

3.1 Configuration on Web

TK Router must be correctly configured before use. This Chapter will show you how to configure via Web.

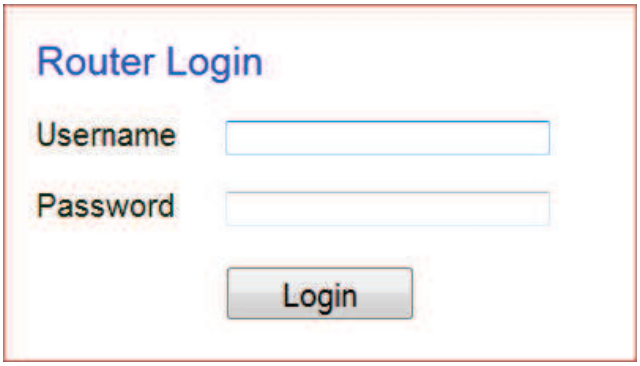
3.1.1 Preparation

Firstly, connect your devices with TK700 by cable or HUB (switch), then set the IP of PC and TK700 in the same subnet, for example: Set PC IP to 192.168.2.50, net mask: 255.255.255.0, gateway (default IP of TK700: 192.168.2.1):

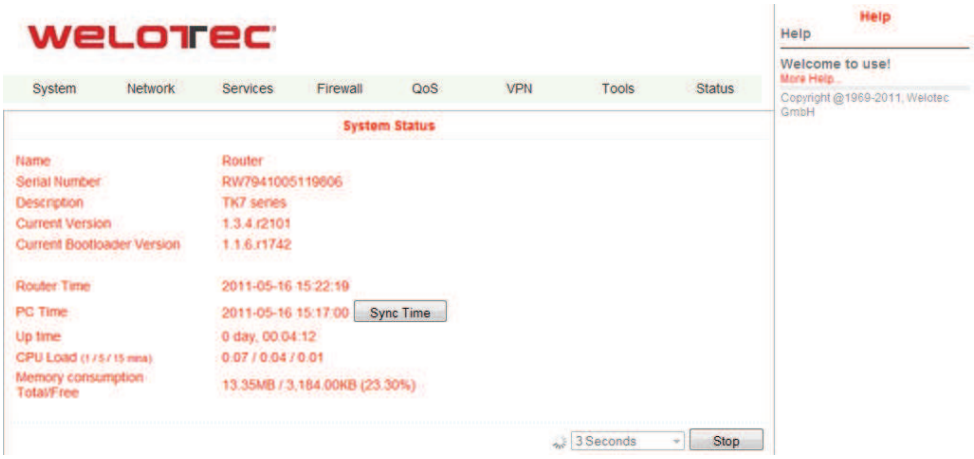


Open IE browser, input the IP address of TK700: http://192.168.2.1 (default IP of TK700).

Then you'll see the Login Web below, you need to login as Administrator. Input the username and password (default: adm/123456).



Click "Login" to enter configure web:



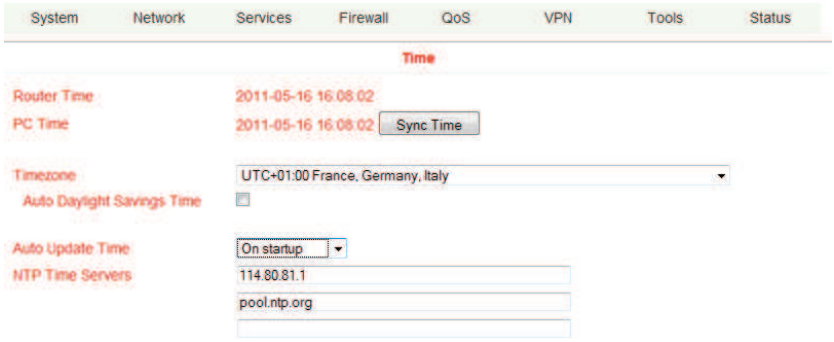
3.1.2 System

System settings include the 9 settings: Basic Setup, Time, Serial Port, Admin Access, System Log, Config Management, Update, Reboot and Logout.

(1) Basic Setup

Parameters Name	Description	Default	Example
Language	Choose language of configuration web	Chinese	English
Router Name	Set name of TK Router	Router	My TK Router
Host Name	Name the device/PC linked with TK700	Router	My TK Router

(2) Time

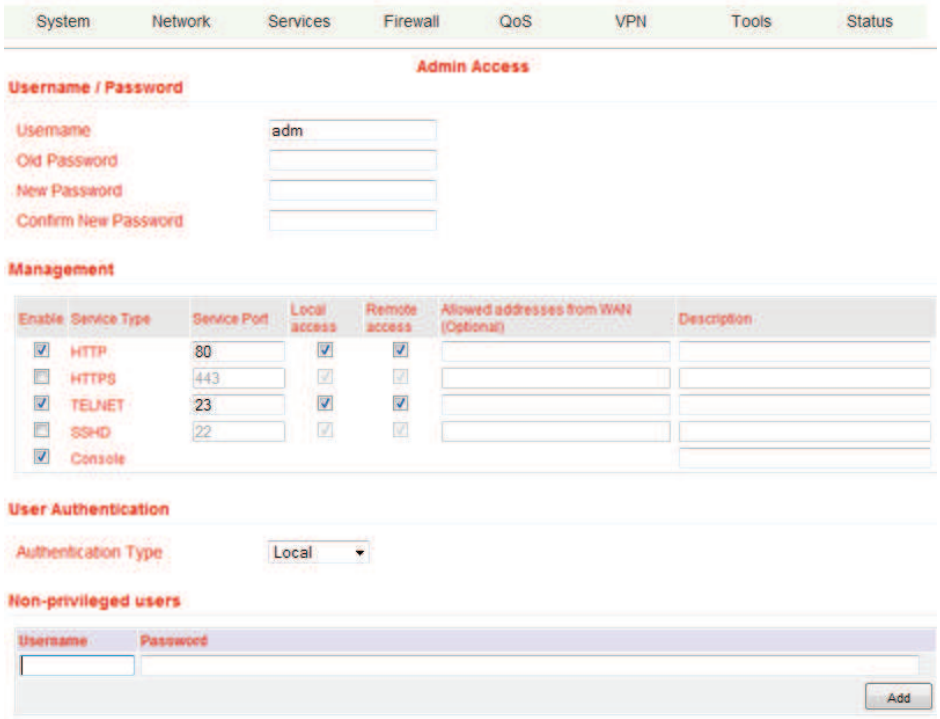


Name	Description	Default
Router Time	Display router time	1970-1-1 8:00:00
PC Time	Display PC time (or the time of device linked with router)	
Time Zone	Set time zone	Custom
Custom TZ string	Set the string of time zone of Router	CST-8
Auto Update Time	Time Update Interval	Disabled
NTP Time Servers (after enable the Auto Update Time)	Setting for NTP Time server. (Three at the most)	pool.ntp.org

(3) Serial Port

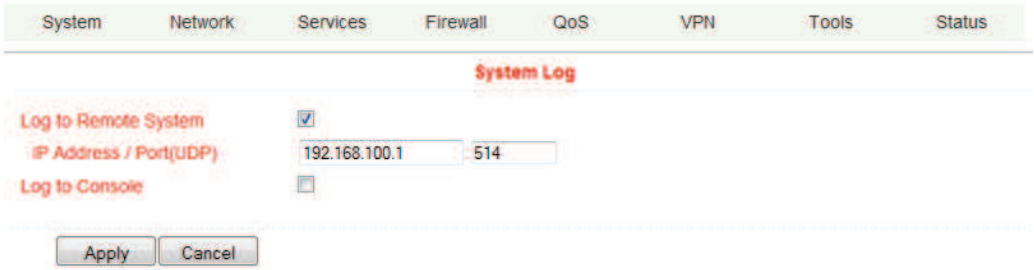
Name	Description	Default
Baud Rate	Serial baud rate	19200
Data Bit	Serial data bits	8
Parity	Set parity bit of serial data.	None
Stop Bit	Set stop bit of serial data.	1
Hardware Flow Control	Enable Hardware Flow Control	Disable
Software Flow Control	Enable Software Flow Control	Disable

(4) Admin Access



Name	Description	Default
Username/Password		
Username	Username for configuration web login	adm
Old Password	To change the password, you need to input the old one	123456
New Password	Input new password	
Confirm New Password	Input the new password again	
Management		
HTTP/HTTPS/TELNET/SSHD/Console		
Enable	Select to enable	Enable
Service Type	HTTP/HTTPS/TELNET/SSHD/Console	80/443/23/22/Blank
Local Access	Enable—allow manage Router by LAN(e.g.: HTTP) Disable—forbid manage Router by LAN.	Enable
Remote Access	Enable—allow to manage TK700 by WAN. (e.g.: HTTP) Disable—forbid to manage TK700 by WAN. (e.g.: HTTP)	Enable
Allowed Access from WAN (Optional)	Set the range of allowed IP address for WAN (HTTP/HTTPS/TELNET/SSHD)	Control services server can be set at this time, for example 192.168.2.1/30 or 192.168.2.1-192.168.2.10
Description	Describe the parameters of management (non-influence to TK700)	
Other Parameters		
Log Timeout	Set the Log Timeout, configuration web will be disconnected after timeout	500 seconds

(5) System Log

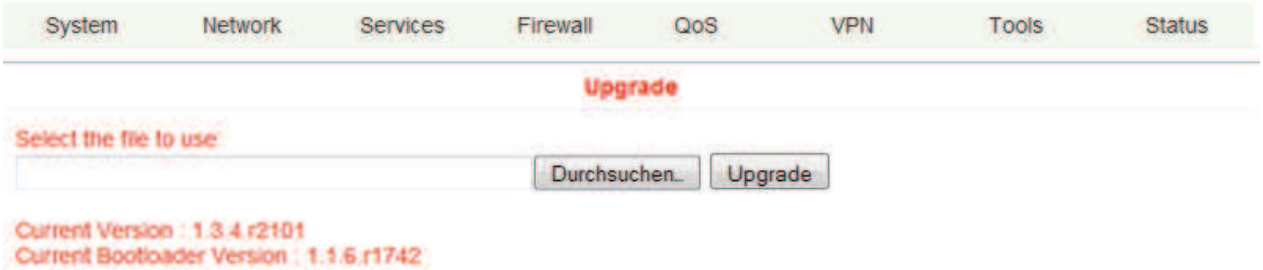


Name	Description	Default
Log to Remote System	Enable remote log server	Disable
IP address/Port (UDP)	Set the IP and Port of remote log server	Port: 514

(6) Config Management

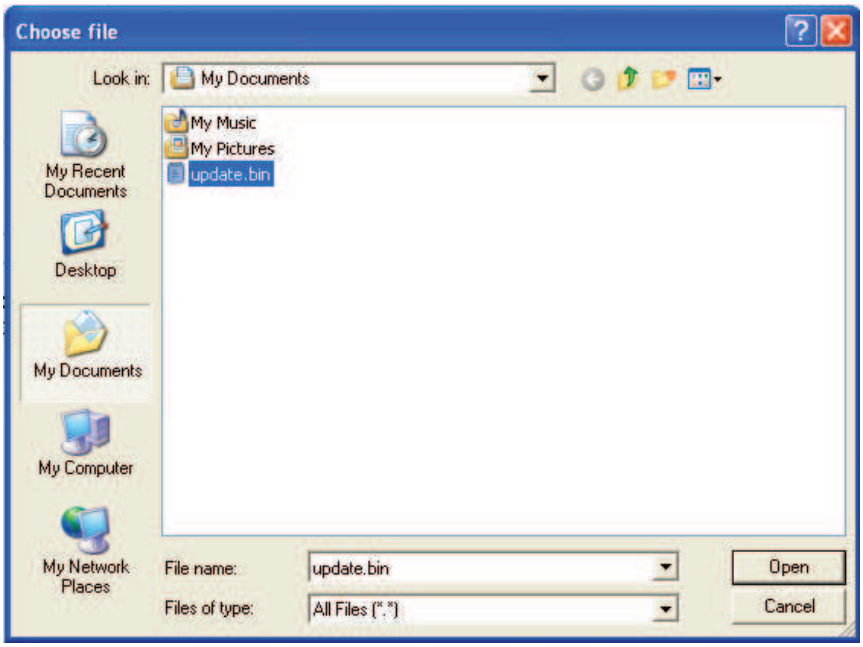
Name	Description
Router Configuration	Import/Backup configuration file
Restore default configuration	Click to reset TK700 (to enable RESET, you need to reboot TK700)
Network Provider (ISP)	Used to configure the APN, username, password and other parameters of major operators

(7) System Upgrade



If need to upgrade system, click "System"=>"System upgrade" to enter update page, then follow the steps below:

Click "Browse", choose the upgrade file;



Click "update", and then click "sure" to begin update as it shows below.

Upgrade firmware succeed, and click "reboot" to restart TK700.

(8) Reboot

If you need to reboot system, please click "System"=>"Reboot", Then click "OK" to restart system.

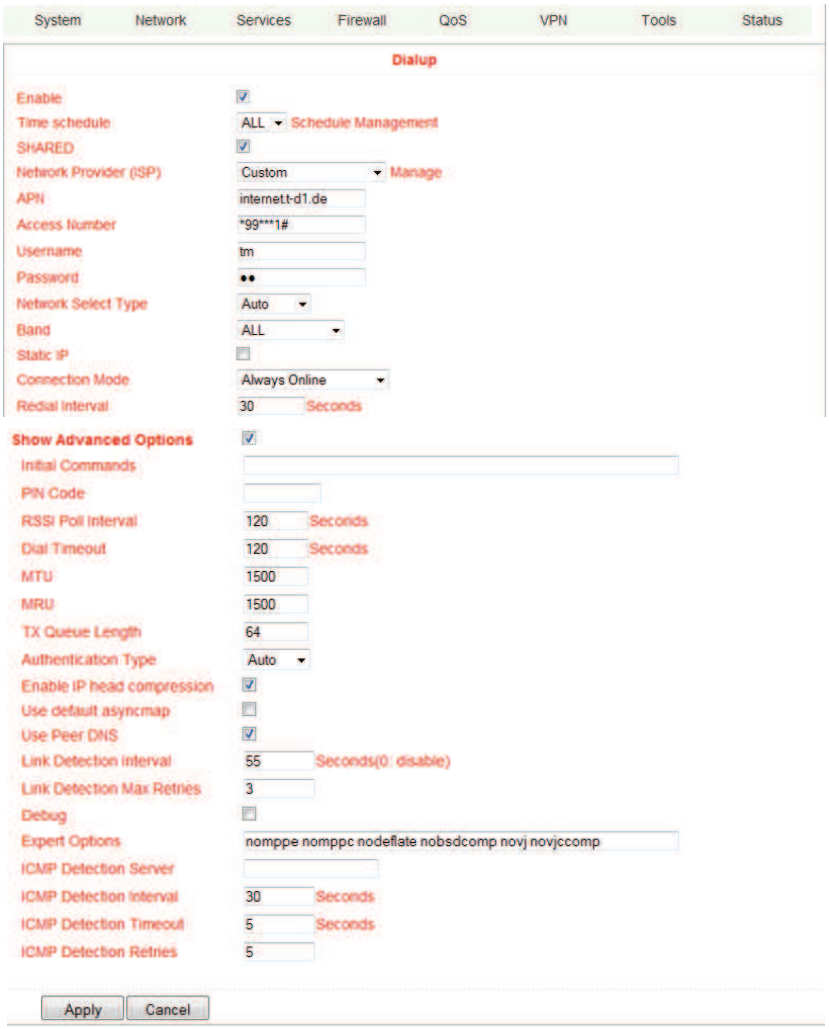
(9) Logout

If you need to logout system, click "System"=>"Logout", and then click "OK".

3.1.3 Network

Network settings include configurations of Dialup, LAN, DNS, DDNS, Static Route, and etc.

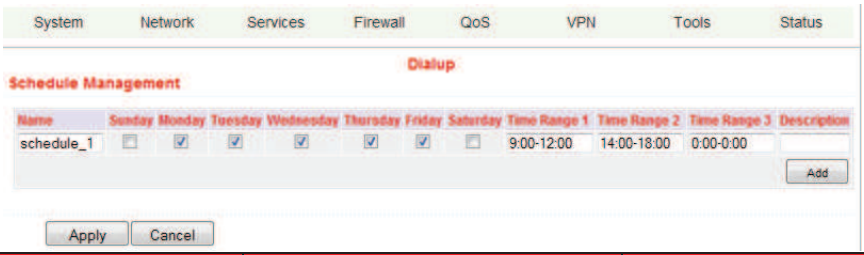
(1) Dialup



Name	Description	Default
Enable	Enable PPP dialup	Enable
Time Schedule	Set time for online and offline	ALL
SHARED	Enabled—device linked with Router **Can** access to internet. Disable—device **Can NOT** access to internet via Router.	Enable
ISP	Select local ISP, if not listed here, please select "Customer"	Customer
Network Select Type	Choose mobile network type	HSDPA (or GPRS)
APN	APN parameters provided by **Local ISP**	cmnet/uninet
Access Number	Dialup parameters provided by **Local ISP**	"*99#""*99***1#" or #777
Username	Dialup parameters provided by **Local ISP**	"gprs" or "CDMA"
Password	Dialup parameters provided by **Local ISP**	"gprs" or "CDMA"
Static IP	Enable Static IP if your SIM card can get static IP address	Disable
Connection Mode	Optional Always Online,	Always Online

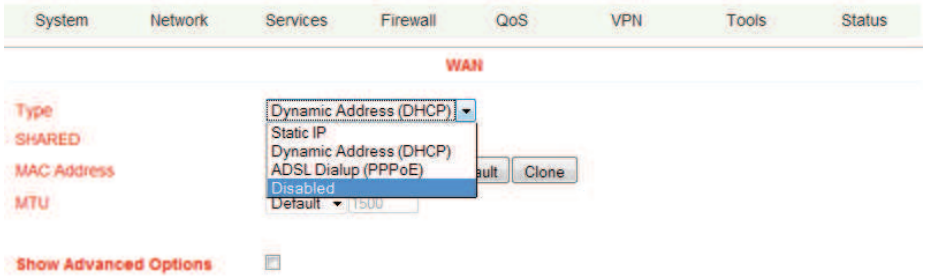
Redial Interval	When Dial fails, TK Router will redial after the interval	30 seconds
Show Advanced Options	Enable configure advanced options	Disabled
Initial Commands	Used for advanced parameters	Blank
Dial Timeout	Set dial timeout (TK700 will reboot after timeout)	120 seconds
MTU	Set max transmit unit	1500
MRU	Set max receive unit	1500
TX Queue Length	Set length of transmit queue	3
Enable IP header compression	Enable IP header compression	Disabled
Use default asyncmap	Enable default asyncmap, PPP advanced option	Disabled
Using Peer DNS	Click Enable to accept the peer DNS	Enabled
Link Detection Interval	Set Link Detection Interval	30 seconds
Link Detection Max Retries	Set the max retries if link detection failed	3
Debug	Enable debug mode	Enable
Expert Option	Provide extra PPP parameters, normally user needn't set this.	Blank
ICMP Detection Server	Set ICMP Detection Server, blank represents none	Blank
ICMP Detection Interval	Set ICMP Detection Interval	30 seconds
ICMP Detection Timeout	Set ICMP Detection Timeout (TK700 will reboot if ICMP time out)	5 seconds
ICMP Detection Max Retries	Set the max number of retries if ICMP failed	5

Dialup----Time Schedule Management:



Name	Description	Default
Name	Name the schedule	schedule 1
Sunday		Blank
Monday		Enable
Tuesday		Enable
Wednesday		Enable
Thursday		Enable
Friday		Enable
Saturday		Blank
Time Range 1	Set Time Range 1	9:00-12:00
Time Range 2	Set Time Range 2	14:00-18:00
Time Range 3	Set Time Range 3	0:00-0:00
Description	Describe configuration	Blank

(2) WAN (for TK704 only)

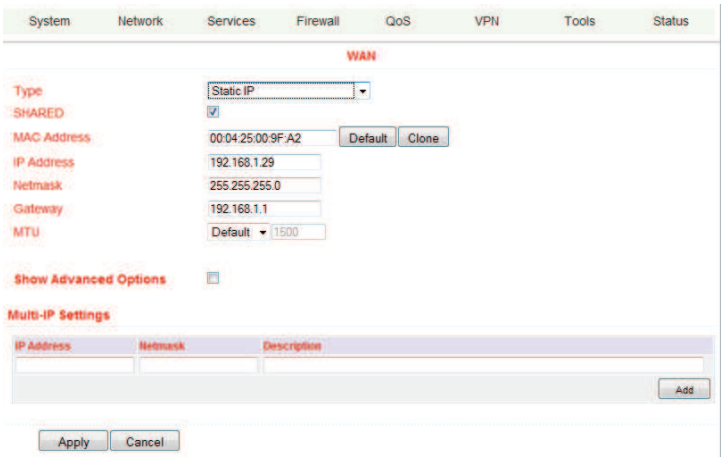


This page is to set the type of WAN port:

Name	Description	Default
Type	Static IP; Dynamic Address(DHCP); ADSL Dialup(PPPoE); Disabled	Disabled

Attention: There can only be one WAN type at one time, enabling one type WAN will disabled another.

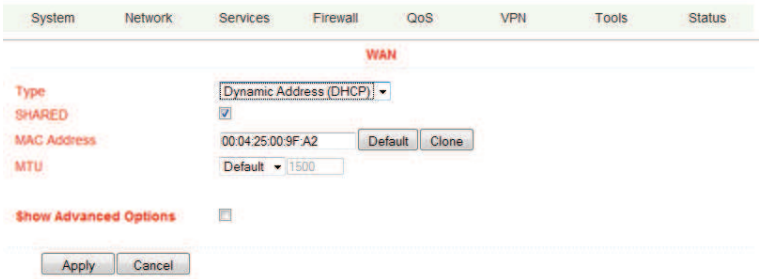
WAN—Static IP



Notice: please **DO NOT** set WAN address as: 192.168.3.x (an IP for DMZ port).

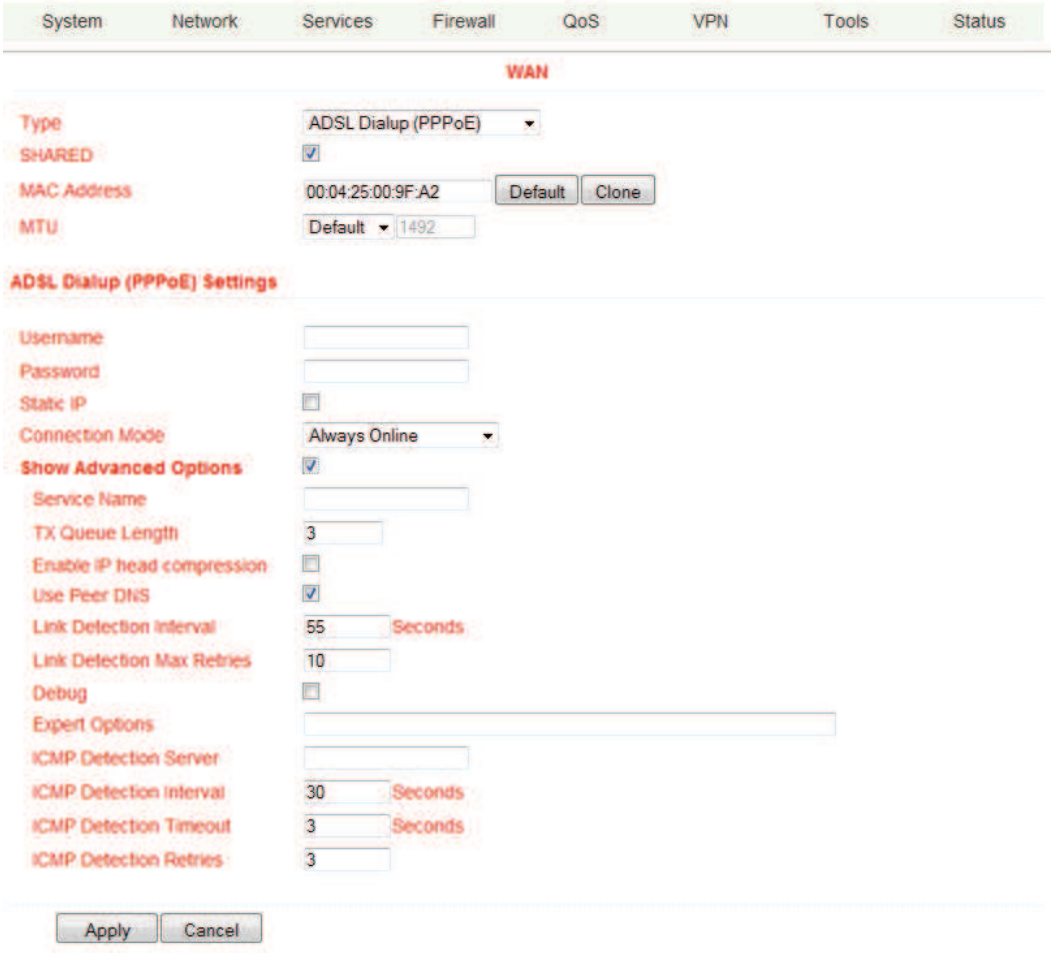
Name	Description	Default
Type	Static IP	
SHARED	Enabled—the local device linked with Router can get access to internet. Disable—the local device can't get access to internet via Router.	Enable
MAC Address	Set MAC Address	
IP Address	Set WAN port IP	192.168.1.29
Net Mask	Set WAN port Net Mask	255.255.255.0
Gateway	Set WAN Gateway	192.168.1.1
MTU	Set Max Transmission Unit, optional between default and manual	1500
	Multi-IP Settings(can set 8 additional IP address at the most)	
IP address	Set the additional IP address of LAN	Blank
Net Mask	Set Net Mask	Blank
Description	Describe the settings	Blank

WAN—Dynamic Address (DHCP)



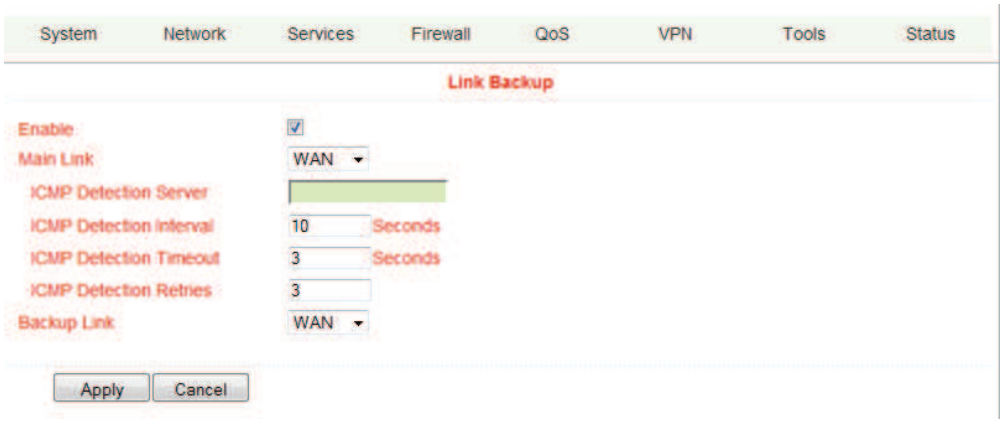
Name	Description	Default
Type	Dynamic Address (DHCP)	
SHARED	Enabled—the local device linked with Router can get access to internet. Disable—the local device can't get access to internet via Router.	Enable
MAC Address	Set MAC Address	
MTU	Set Max transmission unit, optional between default and manual	1500

WAN --ADSL



Name	Description	Default
Type	ADSL Dialup (PPPoE)	
SHARED	Enabled—the local device linked with Router can get access to internet. Disable—the local device can't get access to internet via Router.	Enable
MAC Address	Set MAC Address	
MTU	Set Max Transmission Unit, optional between default and manual	1500
ADSL Dialup (PPPoE) Settings		
Username	Set username for dialing up	Blank
Password	Set password for dialing up	Blank
Static IP	Enable Static IP	Disabled
IP address	Static IP Address	Blank
Peer IP	Set Peer IP	Blank
Connection Mode	Set connection mode (Connect on Demand/Always Online/ Manual)	Always Online
Advanced Options		
Show advanced options	Enable advanced configuration	Disabled
Service Name	Name the service	Blank
TX Queue Length	Set TX Queue Length	3
Enable IP head compression	Click to enable IP head compression	Disabled
User Peer DNS	Enable User Peer DNS	Disabled
Link Detection Interval	Set link detection interval	55 seconds
Link Detection Max Retries	Set link detection max retries	10 (times)
Debug	Select to enable debug-mode	Disabled
Expert Options	Set expert parameters	Blank
ICMP Detection Server	Set ICMP Detection Server	Blank
ICMP Detection Time	Set ICMP Detection Time	30
ICMP Detection Timeout	Set ICMP Detection Timeout	3
ICMP Detection Max Reties	Set ICMP Detection Max Reties	3

(3) Link Backup (for TK704 only)



Link Backup, to realize link backup between Cellular WAN and Ethernet WAN, when one fails, TK700 will try the other

Name	Description	Default
Enable	Enable Link Backup service	Disabled
Main Link	TK Router will choose this for normal WAN connection	WAN (Ethernet WAN)
ICMP Detection Server	ICMP can ensure a link to certain destination	
ICMP Detection Interval	Time interval between ICMP packages	10
ICMP Detection Timeout	Timeout for each ICMP package	3 (seconds)
ICMP Detection Max Retries	After the retries if no ICMP succeed, dialup will try the backup link	3
Backup Link	Select the backup link	WAN

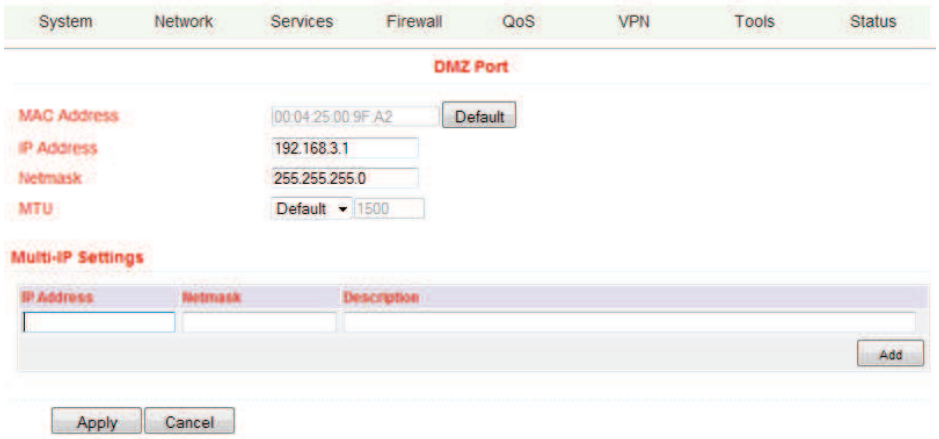
(4) LAN

Notice: please **DO NOT** set LAN address as: 192.168.3.x (an IP for DMZ port).

Name	Description	Default
MAC Address	The MAC address in LAN	00:10:A1:86:95:02 (Provided by Welotec) , for manufactures
IP Address	Set IP Address in LAN	192.168.2.1 (If Changed, you need to input the new address for entering the configuration web)
Net Mask	Set Net Mask of LAN	255.255.255.0
MTU	Set MTU length, optional between Default and Manual	1500
Detection Host	Set Detection Host Address	0.0.0.0
WOL MAC Address	Set the MAC of PC in the LAN of router, for Wakeup Over LAN (WOL) function, you should also set "Networks"→ "Dialup" and change dialup mode into "Trigger by SMS".	Blank
Multi-IP Settings (Support additional 8 IP addresses at the most)		
IP Address	Set additional IP Address of LAN	Blank
Description	Description about this IP address	Blank

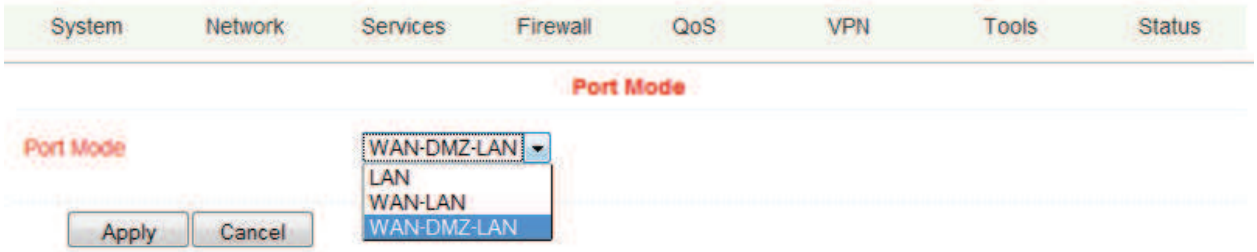
(5) DMZ Port (for TK704 only)

Configure this page after select WAN-DMZ-LAN mode in Port Mode page.



Name	Description	Default
MAC Address	Set MAC address of DMZ port	(Provided by Manufacture: Welotec)
IP Address	Set IP Address of DMZ port	192.168.3.1
Net Mask	Set Net Mask of DMZ port	255.255.255.0
MTU	Optional between Default & Manual	Default (1500)
Multi-IP Settings (8 additional IP address at the most)		
IP Address	Set additional IP address for DMZ port	Blank
Net Mask	Set Net Mask	Blank
Description	Description of additional IP address	Blank

(6) Port Mode (for TK704 only)



Notice: please **DO NOT** set WAN IP/LAN IP/DMZ IP the same; it will disable your link to internet!

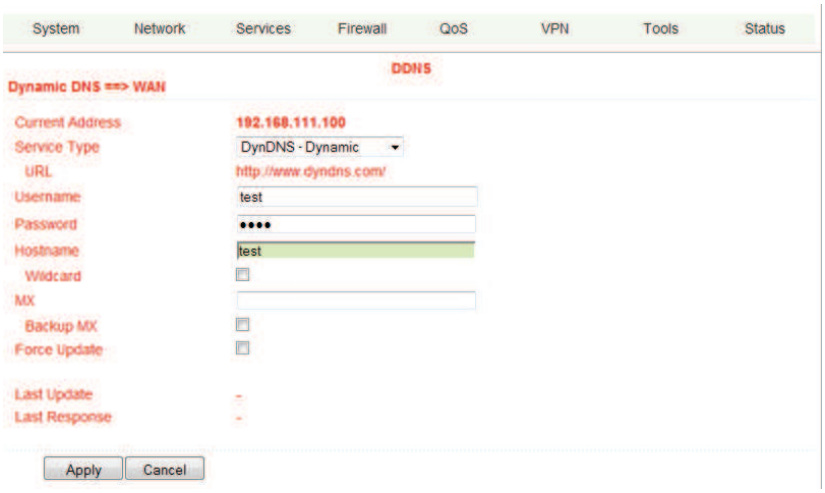
Name	Descriptions	Default
Port Mode	LAN (four LAN ports) WAN-LAN (3 LAN ports and 1 WAN port) WAN-DMZ-LAN (1 WAN port, 1 DMZ port and 2 LAN ports)	WAN-DMZ-LAN

(7) DNS

Name	Description	Default
Primary DNS	Set Primary DNS	Blank
Secondary DNS	Set Secondary DNS	Blank

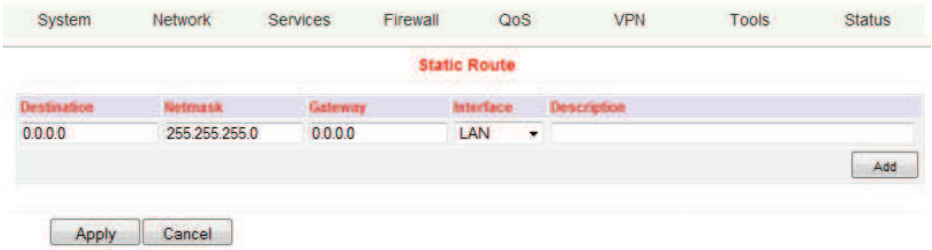
(8) DDNS (Dynamic DNS)

Name	Description	Default
Current Address	Show the current IP address	Blank
Service Type	Select DDNS Provider	Disabled



Name	Description	Default
Service Type	DynDNS - Dynamic	
URL	http://www.dyndns.com/	
Username	Registered username for DDNS	
Password	Registered password for DDNS	
Hostname	Registered hostname for DDNS	

(9) Static Route



Name	Description	Default
Destination	Set IP address of destination	Blank
Net Mask	Set subnet Mask of destination	255.255.255.0
Gateway	Set the gateway of destination	Blank
Interface	Optional LAN/WAN port access to destination	Blank
Description	Describe static route	Blank

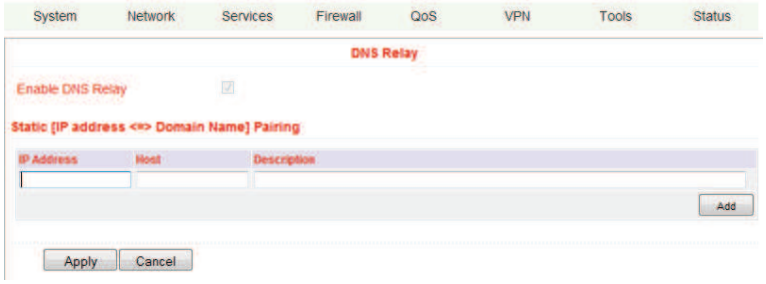
3.1.4 Service

Service settings include DHCP Service, DNS Forwarding, VRRP and other related parameters.

(1) DHCP Service

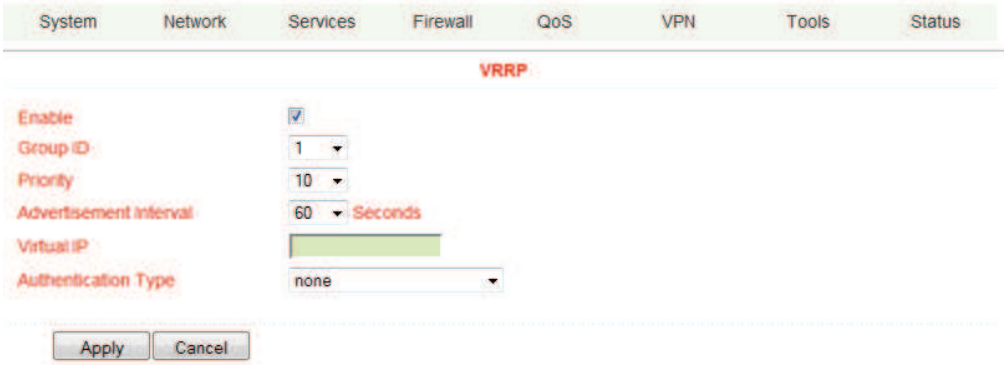
Name	Description	Default
Enable DHCP	Click to enable DHCP	Enable
IP Pool Starting Address	Set the starting IP address of DHCP pool	192.168.2.2
IP Pool Ending Address	Set the ending IP address of DHCP pool	192.168.2.100
Lease	Set the valid time lease of IP address obtained by DHCP	60 minutes
DNS	Set DNS Server	192.168.2.1
Windows Name Server (WINS)	Set WINS	Blank
Static DHCP (can set 20 designated IP address at the most)		
MAC Address	Set the MAC address of a designated IP address	Blank
IP address	Set the static IP address	192.168.2.2
Host	Set the hostname	Blank

(2) DNS Relay



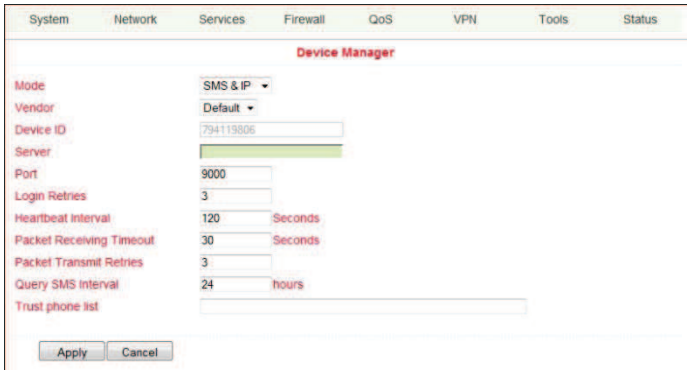
Name	Description	Default
Enable DNS Relay	Click to enable DNS Relay	Enable (after enable DHCP)
Designate IP address<=>DNS couples (20 at the most)		
IP Address	Set IP address <=> DNS couples	Blank
Host	Set the name of IP address <=> DNS couples	Blank
Description	Describe IP address <=> DNS couples	Blank

(3) VRRP

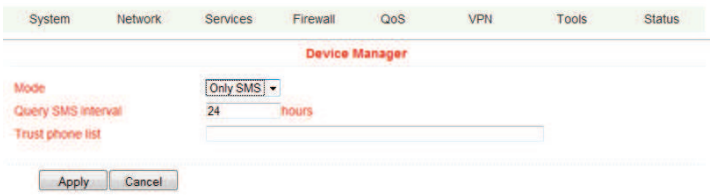


Name	Description	Default
Enable	Select to enable VRRP	Disable
Group ID	Select group id of routers (range 1-255)	1
Priority	Select priority for router (range 1—254)	10 (bigger number stands for higher priority)
Advertisement Interval	Set ad interval	60 sec
Virtual IP	Set Virtual IP	Blank
Authentication Type	Optional: None/Password type	None

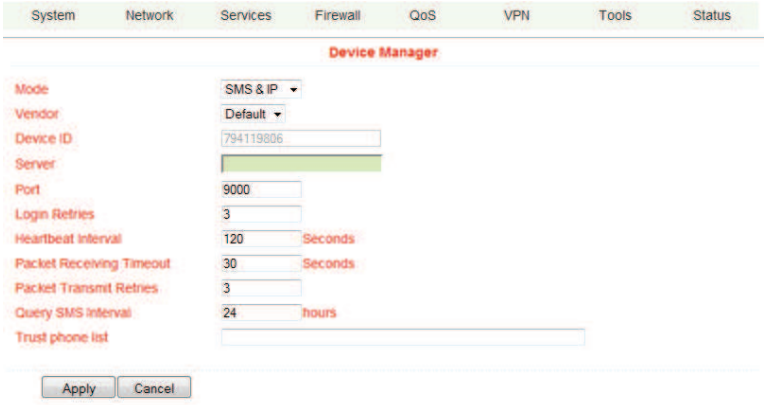
(4) Device Manager



Name	Description	Default
Mode	Disabled/Only SMS/SMS+IP	Disable

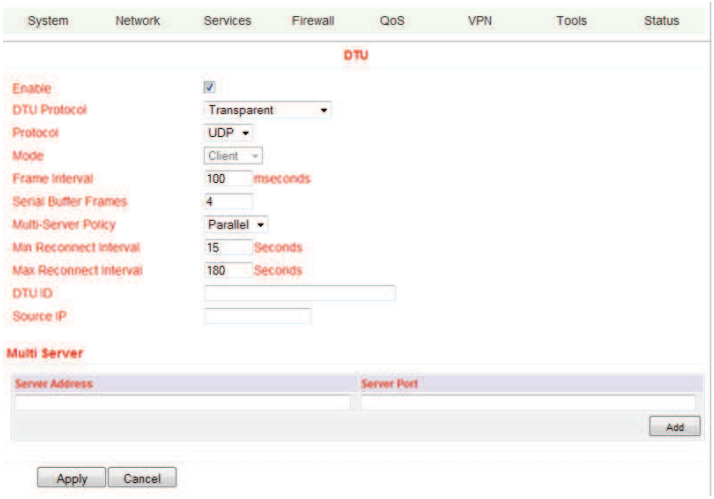


Name	Description	Default
Mode	Only SMS	
Query SMS Interval	Set how long to check SMS	24 hours
Trust Phone List	Add trust Cell Phone List	



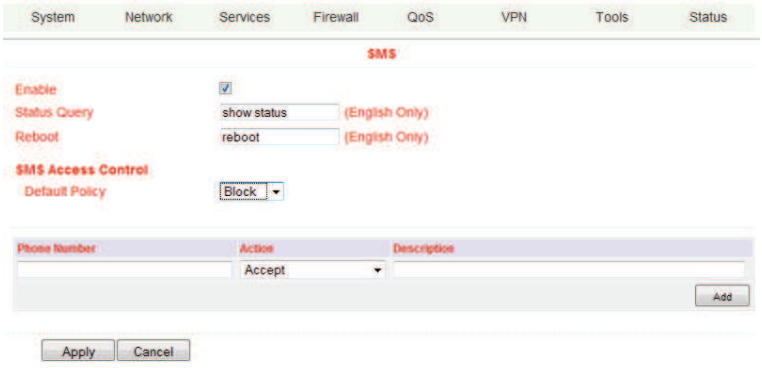
Name	Description	Default
Mode	SMS+IP Mode	
Vendor	Set Vendor Name	Default
Device ID	Set Device ID	
Server	Set Device Manager Server IP	
Port	Set Port For DM	9000
Login Retries	Set login retries	3
Heartbeat Interval	Set interval of heartbeat	120
Packet Receiving Timeout	Set packet receiving timeout	30
Packet Transmit Retries	Set packet transmit reties	3
Query SMS Interval	Set how long to check SMS	24
Trust phone list	Set trust cell phone list	

(5) DTU



Name	Description	Default
Enable	Click to enable DTU	Disable
DTU Protocol	Set DTU protocol, Please see more in related Quick Guide	Transparent
Protocol	Optional between TCP/UDP	UDP
Work Mode	Set DTU as client or server	Client
DTU ID	Set ID of DTU	Blank
Multi Server	Set the IP address and Port of server to receive data.	Blank

(6) SMS



Name	Description	Default
Enable	Click to enable SMS control	Disable
Status Query	Set Status Query SMS, and you can see status of router by send SMS (e.g.: show status).	
Reboot	Let the router reboot	
SMS Access Control		
Default Policy	Block or Accept control SMS from certain Phone	Block
Phone List	Include phone numbers accepted or blocked to send SMS to router	

Notice: before using this function, please notice you have a SIM card with SMS function in the router, else, please contact local mobile operator.

SMS you will get in your mobile phone:
Host: (SN);
Uptime: (the uptime of router for this time of reboot);
State: (Online/Offline) (Cellular WAN IP)
LAN: (Up) (LAN IP)

(7) LLDP (Link Layer Discovery Protocol)

Name	Description	Default
Enable	Click to enable LLDP	Disable
Tx Interval	Set DTU protocol	Transparent

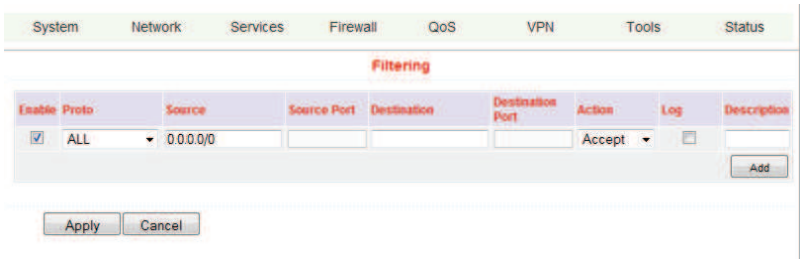
3.1.5 Firewall

This page is to set parameters concerned with firewall.

(1) Basic Configuration

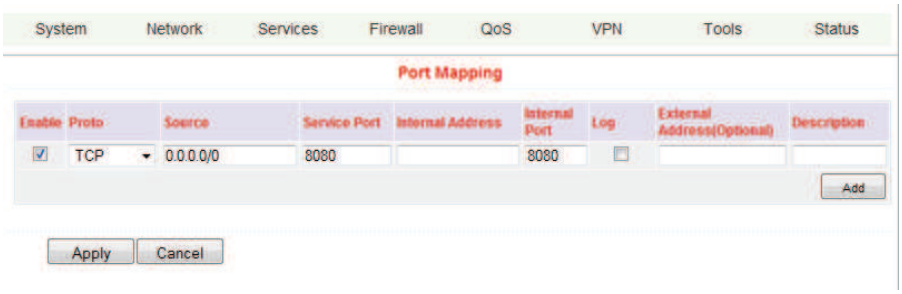
Name	Description	Default
Default Filter Policy	Optional between Accept /Refused	Accept
Block Anonymous WAN Request (ping)	Click to enable filer ping request	Disable
Filter Multicast	Click to enable filter multicast	Enable
Defend DoS Attack	Click to enable Defend DoS Attack	Enable

(2) Filtering



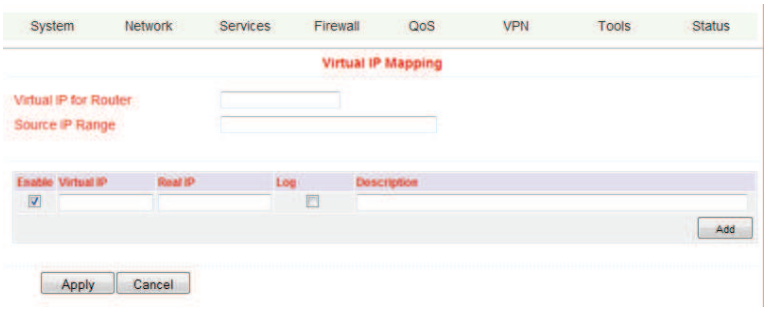
Name	Description	Default
Enable	Click to enable filtering	Blank
Protocol	Optional among TCP/UDP/ICMP	All
Source IP address	Set Source IP address	Blank
Source Port	Set Source Port	Blank
Destination IP	Set destination IP	Blank
Destination Port	Set destination port	Blank
Action	Accept/Deny	Accept
Log	Click to enable login	Disable
Description	Describe your configuration	Blank

(3) Port Mapping



Name	Description	Default
Enable	Click Enable Port Mapping	Disable
Source	To fill with source IP	0.0.0.0/0
Service Port	Fill the port of service	8080
Internal Address	Set the internal IP for mapping	Blank
Internal Port	Set the Port mapping to internal	8080
Log	Click to enable log about port mapping.	Disable
Description	Describe meanings of each mapping	Blank

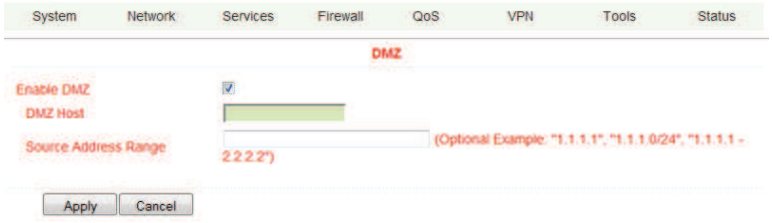
(4) Virtual IP Mapping



An internal PC's IP can match to a virtual IP, and external network can access to internal PC via this virtual IP address.

Name	Description	Default
Virtual IP for Router	Set Virtual IP for Router	Blank
Source IP Range	Set range of source IP address	Blank
Virtual IP	Set virtual IP	Blank
Real IP	Set real IP	Blank
Log	Enable logging concerned with virtual IP	Disable
Description	Describe this configuration	Blank

(5) DMZ (All Port Mapping)

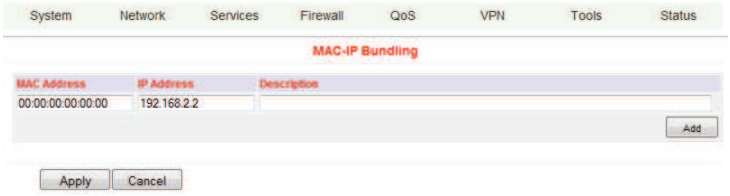


Mapping all the ports and then external PC can get access to all the ports of internal device behind TK700.

Attention: this function cannot help to map the admin port of TK700 (e.g.: 80 TCP) to the device's port.

Name	Description	Default
Enable DMZ	Click to Enable DMZ	Disable
DMZ Host	Set host IP of DMZ	Blank
Source Address Range	Set IP address with restrict IP access	Blank

(6) MAC-IP Bundling



When firewall denies all access to the external network, only PC with MAC-IP Bundling can access to external network

Name	Description	Default
MAC Address	Set Bundling Mac address	Blank
IP Address	Set Bundling IP address	192.168.2.2
Description	Describe this configuration	Blank

3.1.6 QoS

Name	Description	Default
Enable	Click to enable	Disable
Outbound Limit Max Bandwidth	Set the limit speed of out- bound bandwidth	100000kbit/s
Inbound Limit Max Bandwidth	Set the limit speed of inbound bandwidth	100000kbit/s

3.1.7 VPN

This page introduces the parameters set in TK Router 700's Web.

(1) IPSec Settings

To build an IPSec VPN Tunnel, you need first set IPSec properties in this page, then turn to IPSec Tunnels to add your VPN:

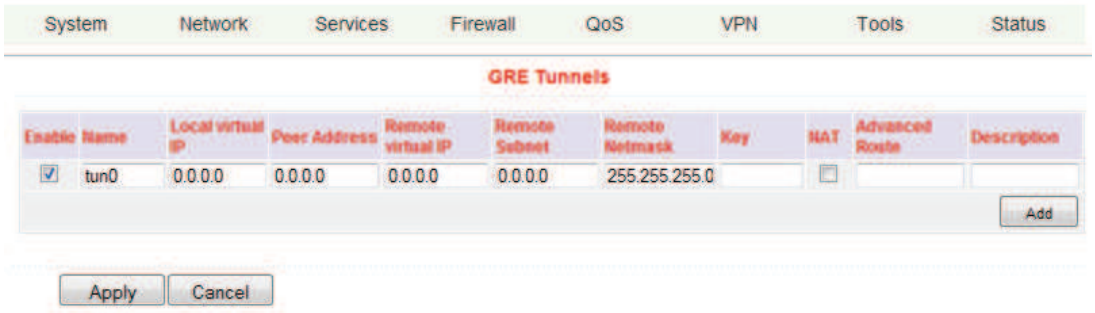
IPSec Settings		
Description: 1. Select to Enable or Disable NATT, normally we need to enable, unless you ensure there is no NAT routers in the network. 2. Select to enable Compression Mode or Debug		
Name	**Description**	**Default**
Enable NAT Transversal (NATT)	Click to enable NATT	Enable
Keep alive time interval of NATT	Set live time for NATT	60 sec
Enable Compression	Click to enable	Enable
Enable Debug	Click to enable	Disable
Force NATT	Click to enable	Disable

(2) IPSec Tunnels

Click "Add" and enter the configuration web:

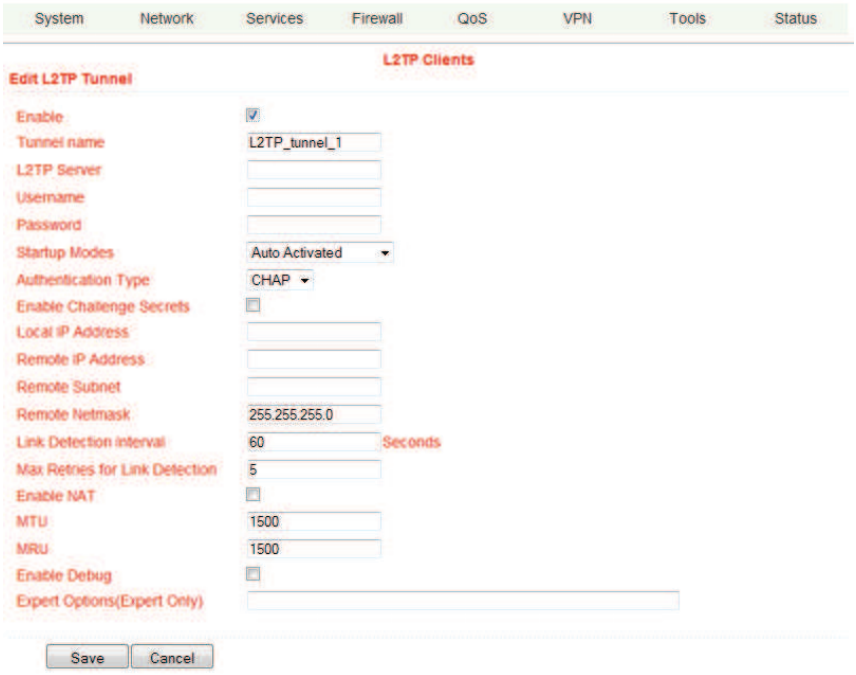
Name	Description	Default
Show Advanced Options	Click to enable advanced options	Disable
Basic Parameters		
Tunnel Name	To name the tunnel	IPSec_tunnel_1
Destination Address	Set the destination address of IPSec VPN Server	Blank
Startup Mode	Auto Activate/Trigged by Data/Passive/Manually Activated	Enable
Negotiation Mode	Optional: Main Mode or Aggressive Mode	Main Mode
IPSec Mode (Enable Advanced options)	Optional: ESP or AH	ESP
IPSec Mode (Enable Advanced options)	Optional: Tunnel Mode or Transport Mode	Tunnel Mode
Tunnel Type	Optional: Host——Host, Host——Subnet, Subnet——Host, Subnet——Subnet	Subnet——Subnet Mode
Local Subnet	Set IPSec Local Protected Subnet	192.168.2.1
Local Subnet Net Mask	Set IPSec Local Protected Subnet Net Mask	255.255.255.0
Remote Subnet Address	Set IPSec Remote Protected Subnet	Blank
Remote Subnet Net Mask	Set IPSec Remote Protected Subnet Net Mask	255.255.255.0
Phase 1 Parameters		
IKE Policy	Optional: 3DES-MD5-96 or AES-MD5-96	3DES-MD5-96
IKE Lifetime	Set IKE 的 Lifetime	86400 sec
Local ID Type	Optional: FQDN, USERFQDN, or IP Address	IP Address
Local ID (Only for FQDN 和 USERFQDN)	Set the ID according to ID type	Blank
Remote ID Type	Optional: FQDN, USERFQDN, or IP Address	IP Address
Remote ID (Only for FQDN and USERFQDN)	Set the ID according to ID type	Blank
Authentication Type	Optional: Shared Key or Certificate	Shared Key
Key (While choosing Shared Key Authentication Type)	Set IPSec VPN Negotiation Key	Blank
Phase 2 Parameters		
IPSec Policy	Optional: 3DES-MD5-96 or AES-MD5-96	3DES-MD5-96
IPSec Lifetime	Set IPSec Lifetime	3600sec
Perfect Forward Secrecy (PFS)	Optional: Disable, GROUP1, GROUP2, GROUP5	Disable ((Enable Advanced options)
Link Detection Parameters (Enable Advanced options)		
DPD Time Interval	Set DPD Time Interval	60sec
DPD Timeout	Set DPD Timeout	180sec
ICMP Detection Server	Set ICMP Detection Server	Blank
ICMP Detection Local IP	Set ICMP Detection Local IP	
ICMP Detection Interval	Set ICMP Detection Interval	30sec
ICMP Detection Timeout	Set ICMP Detection Interval	5sec
ICMP Detection Max Retries	Set ICMP Detection Max Retries	3

(3) GRE Tunnels



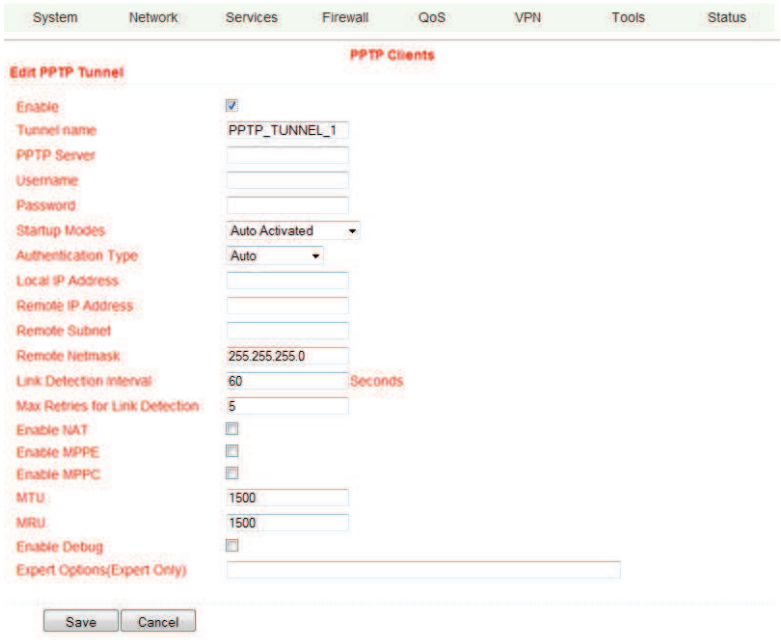
GRE Tunnels		
Name	Description	Default
Enable	Click Enable	Enable
Tunnel Name	Set GRE Tunnel Name	tun0
Local Virtual IP	Set Local Virtual IP	0.0.0.0
Remote Address	Set Remote Address	0.0.0.0
Remote Virtual IP	Set Remote Virtual IP	0.0.0.0
Remote Subnet Address	Set Remote Subnet Address	0.0.0.0
Remote Subnet Net Mask	Set Remote Subnet Net Mask	255.255.255.0
Key	Set Tunnel Key	Blank
NAT	Click Enable NAT Function	Disable
Description	Add Description	Blank

(4) L2TP Clients



Name	Description	Default
Enable	Click Enable	Enable
Tunnel Name	Set Tunnel Name	L2TP_TUNNEL_1
L2TP Server	SetL2TP Server Address	Blank
Username	Set Server Username	Blank
Password	Set Server Password	Blank
Server Name	Set Server Name	l2tpserver
Startup Modes	Set Startup Modes: Auto Activated, Trigged by Data, Manually Activated	Auto Activated
Authencation Type	Set Authencation Type: CHAP, PAP	CHAP
Enable Challenge secrets	Set to enable Challenge secrets	Disable
Local IP Address	Set Local IP Address	Blank
Remote IP Address	Set Remote IP Address	Blank
Remote Subnet	Set Remote Subnet	Blank
Remote Subnet Net Mask	Set Remote Subnet Net Mask	255.255.255.0
Link Detection Interval	Set Link Detection Interval	60
Max Retries for Link Detection	Set Max Retries for Link Detection	5
Enable NAT	Click Enable NAT	Disable
MTU	Set MTU parameters	1500
MRU	Set MRU parameters	1500
Enable Debug Mode	Click Enable Debug Mode	Disable
Expert Options	Set Expert Options	Blank

(5) PPTP Clients

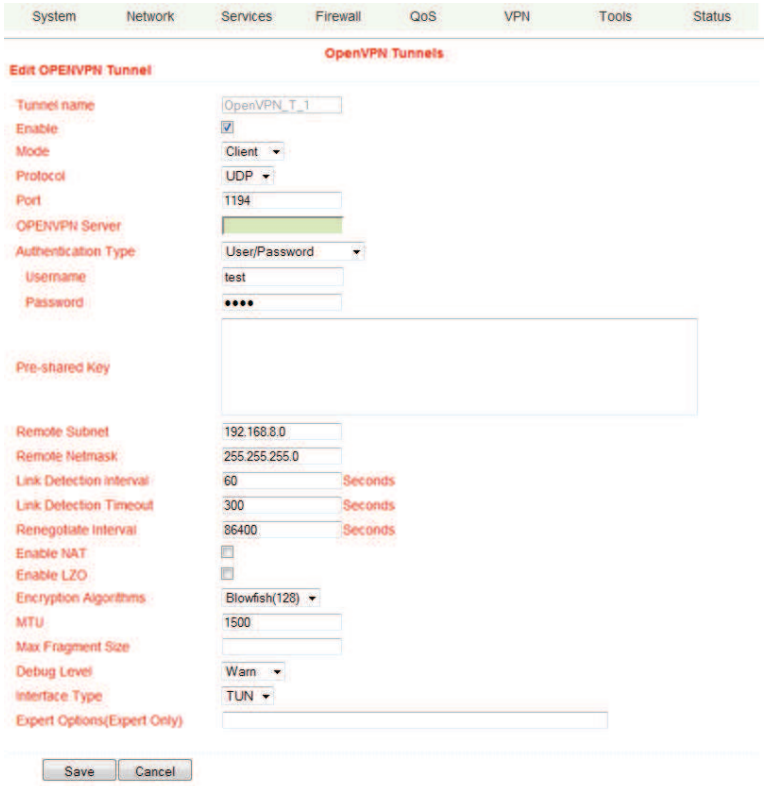


Name	Description	Default
Enable	Click Enable	Enable
Tunnel Name	Set Tunnel Name	PPTP_TUNNEL_1
PPTP Server	Set PPTP Server Address	Blank
Username	Set Server Username	Blank
Password	Set Server's Password	Blank
Startup Mode:	Set Startup Modes: Auto Activated, Trigged by Data, Manually Activated	Auto Activated
Authencation Type	Set Authencation Type: CHAP, PAP, MS-CHAPv1, MS-CHAPv2	Auto
Local IP Address	Set Local IP Address	Blank
Remote IP Address	Set Remote IP Address	Blank
Remote Subnet	Set Remote Subnet	Blank
Remote Subnet Net Mask	Set Remote Subnet Net Mask	255.255.255.0
Link Detection Interval	Set Link Detection Interval	60
Max Retries for Link Detection	Set Max Retries for Link Detection	5
Enable NAT	Click Enable NAT	Blank
Enable MPPE	Click Enable MPPE	Blank
Enable MPPC	Click Enable MPPC	Blank
MTU	Set MTU parameters	1500
MRU	Set MRU parameters	1500
Enable Debug Mode	Click Enable Debug Mode	Blank
Expert Options	For experts only	Blank

(6) Open VPN Tunnels

In the configuration WEB of 700, select "VPN"=> "Open VPN Tunnels" as below:

Click "Add" to add a new Open VPN tunnel:

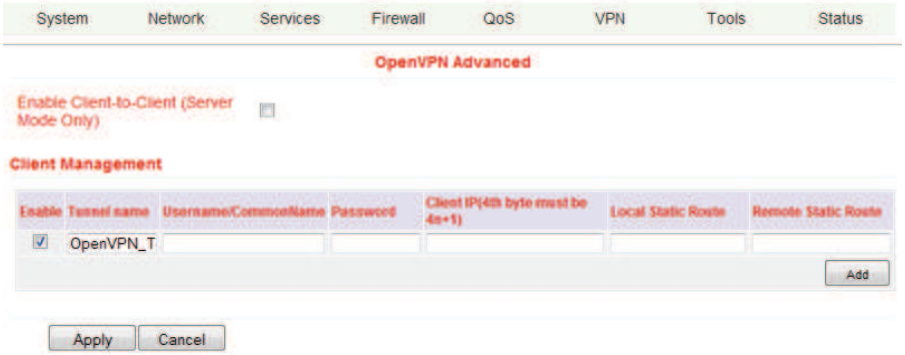


Name	Description
Tunnel name	Can't be set
Enable	Enable this configuration
Mode	Client or Server
Protocol	UDP or TCP
Port	Import or Export Certificate (CRL)
OPEN VPN Server	OPEN VPN Server's IP or DNS
Authencation Type	(1) None ----- for host to host connection (not available when 700 as server) (2) Pre-shared Key ----- for host to host connection (not available when 700 as server) (3) User/Password ----- For multi users to access CA needed: Client: root CA (ca.crt) Server: root CA (ca.crt), public key (pub.crt), private key (pri.key) (4) X.509 Cert (multi-client) ----- CA mode for multi users to access CA needed: Client: root CA (ca.crt), public key (pub.crt), private key (pri.key) Server: root CA (ca.crt), public key (pub.crt), private key (pri.key) (5) X.509 Cert -----CA mode for host to host tunnel CA needed: Client: root CA (ca.crt), public key (pub.crt), private key (pri.key) Server: root CA (ca.crt), public key (pub.crt), private key (pri.key) (7) User+X.509 mode------username + password + CA certificate

	CA needed: Client: root CA (ca.crt), public key (pub.crt), private key (pri.key) Server: root CA (ca.crt), public key (pub.crt), private key (pri.key)
Pre-shared Key	Set shared key or TLS-AUTH static password
Remote Subnet, Remote Net mask	Set the static route of the router, always towards the subnet of its peer
Link Detection Interval, Link Detection Timeout	Always use default
Renegotiate Interval	Always use default
Enable NAT	Set NAT mode, meanwhile it will disable route mode
Enable MPPE	Enable MPPE, always set in server
Enable LZO	Enable LZO compression
Encryption Algorithms	Set encryption algorithms, must match with the server
MTU, Max Fragment Size	Always use default

(8) Open VPN Advanced

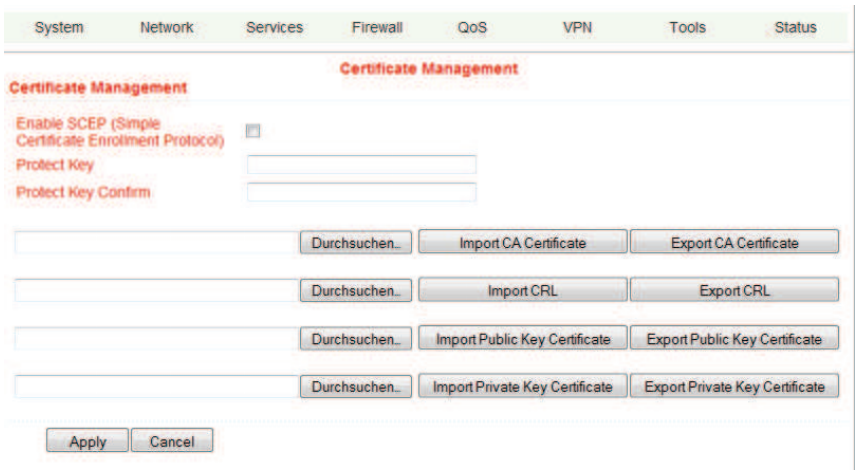
This configuration page is only used for the Open VPN Server.



Name	Description
Enable Client-to-Client	Enable client access to other clients
Client Management	
Tunnel Name	Tunnel Name of the Client
Username/Common Name	Username (using Username/password mode) or Common Name in CA (CA mode)
Local Static Route	The client subnet
Remote Static Route	The server subnet

Attention: CA can only be produced by customer's PC; TK Router 700 cannot produce CA.

(9) Certificate Management

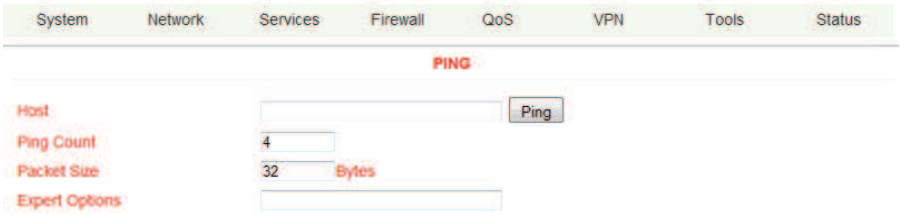


Name	Description	Default
Enable SCEP (Simple Certificate Enrollment Protocol)	Click Enable	
Certificate Protected Key	Set Certificate Protected Key	Blank
Certificate Protected Key Confirm	Confirm Certificate Protected Key	Blank
Import/Export CA Certificate	Import or Export (CA) Certificate	Blank
Import/Export Certificate (CRL)	Import or Export Certificate (CRL)	Blank
Import/Export Public Key Certificate	Import or Export Public Key Certificate	Blank
Import/Export Private Key Certificate	Import or Export Private Certificate	Blank

3.1.8 Tools

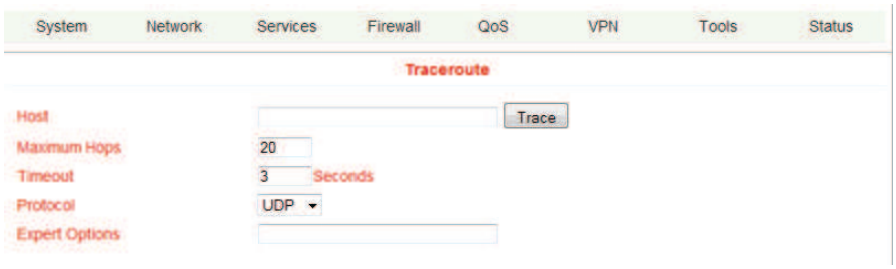
Tools contain PING Detection, Route Trace, Link Speed Test and etc.

(1) PING



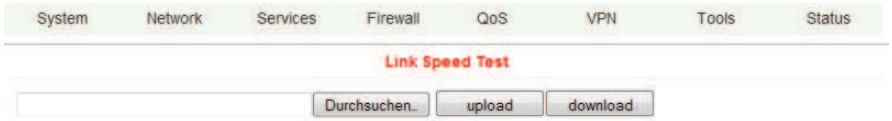
Name	Description	Default
Host	Destination for PING	Blank
Ping Count	Set PING Counts	4 times
Packet Size	Set PING Packet Size	32 Bytes
Expert Options	Advanced parameters	Blank

(2) Trace Route



Name	Description	Default
Host	Destination for Trace Route	Blank
Max Hops	Set Max Hops	20
Time Out	Set Time Out	3 sec
Protocol	Optional: ICMP/UDP	UDP
Expert Options	Advanced parameters	Blank

(3) Link Speed Test

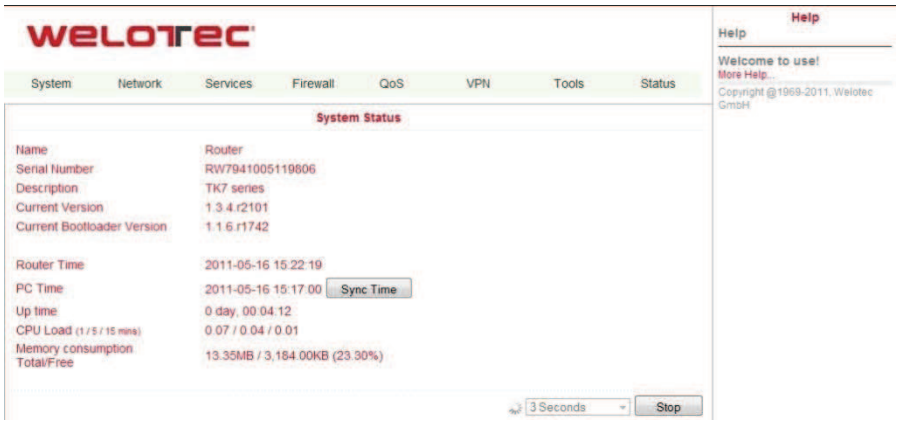


Test link speed via unload or download

3.1.9 Status

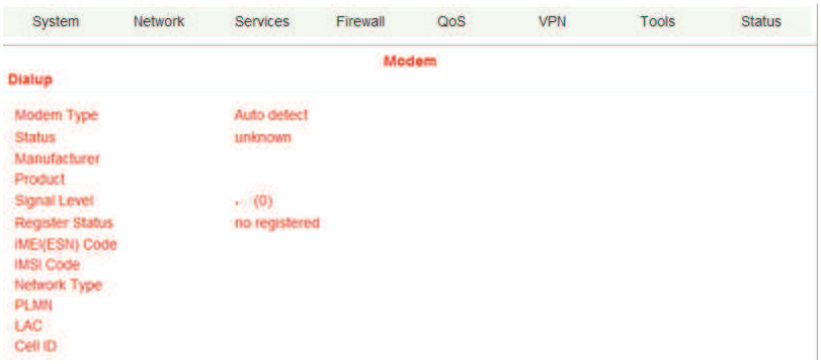
Status contains System, Modem, Network Connections, Route Table, Device List and Log.

(1) System Status



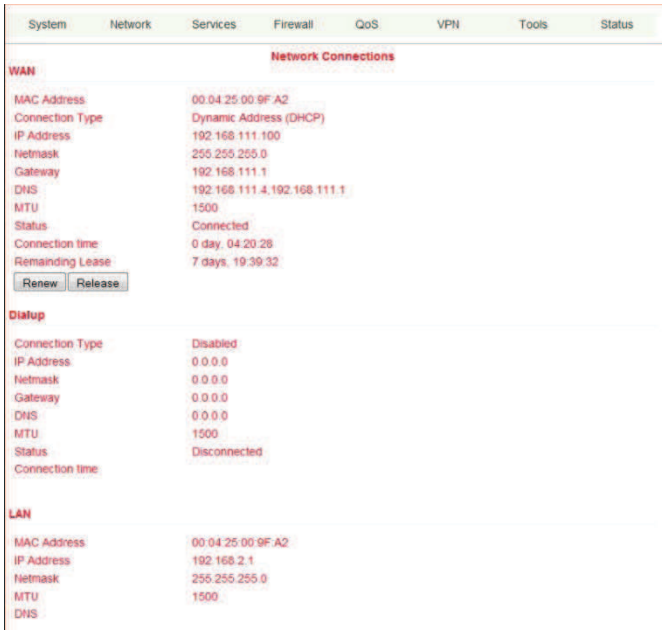
This page shows the status of system, including Name, Model Type, Current Version and etc.

(2) Modem Status



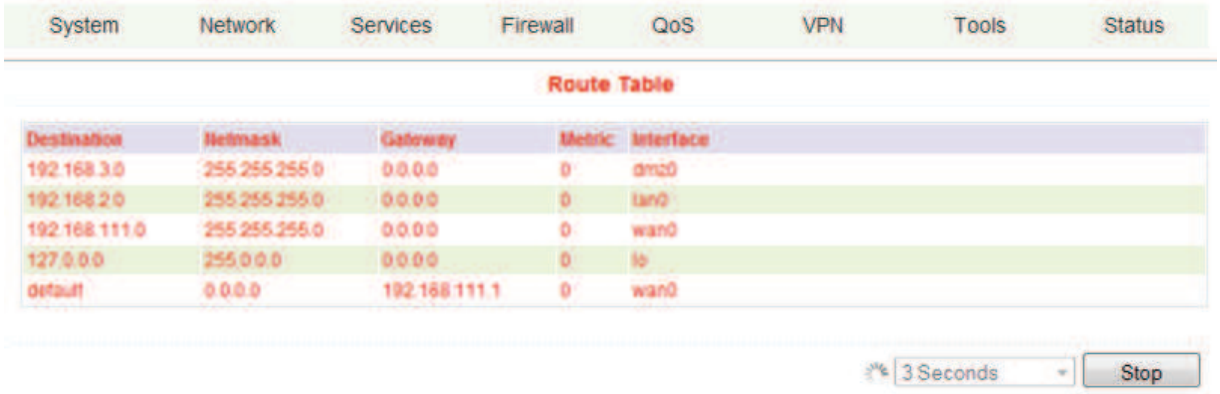
This page shows the status of Modem, including the signal level.

(3) Network Connections



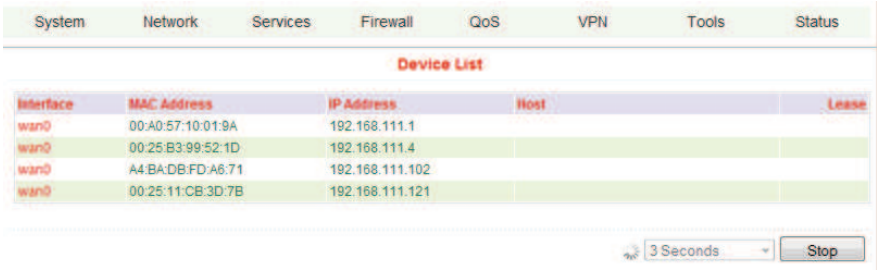
This page shows the network connections via WAN or LAN

(4) Route Table



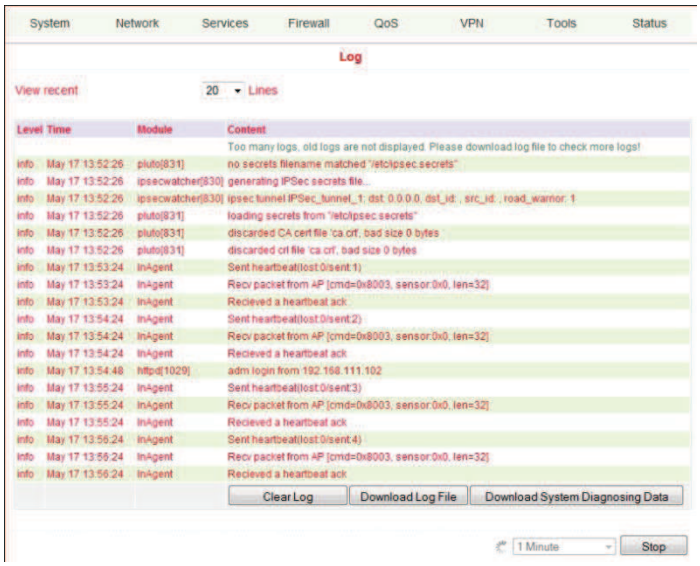
This page shows the route table of TK700.

(5) Device List



This page shows the devices linked with TK700.

(6) Log



This page shows the log of system, including download log file.

For some situation when there're some problems that can't be diagnosed at the moment, you'll be asked to provide the diagnose log to Welotec engineers, you can click "Download System Diagnosing Data" then send the diagnose log to us.

3.2 Support

In case you have problems with the installation and use, please address them to us by e-mail: info@welotec.com.

Subject to alterations without notice.