

# RUT901 SNMP

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## Summary

**Simple Network Management Protocol (SNMP)** is a network management protocol used for collecting information and configuring network devices. This page is an overview of the SNMP function in RUT901 devices.

**Note:** SNMP is additional software that can be installed from the **System** → **Package Manager** page.

If you're having trouble finding this page or some of the parameters described here on your device's WebUI, you should **turn on "Advanced WebUI" mode**. You can do that by clicking the "Advanced" button, located at the top of the WebUI.



## SNMP settings

The **SNMP settings** page is used to configure SNMP accessibility and general SNMP information for your device.

## SNMP agent settings

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Field	Value	Description
Enable SNMP service	off   on; default: <b>off</b>	Run SNMP service on system's startup.
Enable remote access	off   on; default: <b>off</b>	Open port in firewall so that SNMP service may be reached from WAN.
IP type	IPv4   IPv6   IPv4v6; default: <b>IPv4</b>	IP type used by SNMP.
Port	integer [0..65535]; default: <b>161</b>	SNMP service's port.
SNMP v1 Mode	off   on; default: <b>on</b>	Enable/disable SNMP v1 Mode.
SNMP v2c Mode	off   on; default: <b>on</b>	Enable/disable SNMP v2c Mode.
SNMP v3 Mode	off   on; default: <b>off</b>	Enable/disable SNMP v3 Mode.

## SNMP System Summary

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The **SNMP System Summary** section contains general information about SNMP on this device. You can also download this device's **MIB file** from this section.



Field	Value	Description
MIB file	-(interactive button)	Downloads the device's MIB file.
System OID	1.3.6.1.4.1.48690	OID or Object Identifier, is an identifier used to name and point to an object in the MIB hierarchy.
Location	string; default: <b>location</b>	Trap named sysLocation.
Contact	string; default: <b>email@example.com</b>	Trap named sysContact.
Name	string; default: <b>name</b>	Trap named sysName.

## SNMP v3 users

The **SNMP v3 users** page is used to create and manage users, who can be authenticated using SNMP v3. To configure an SNMP user, you must first create it:

1. Enter a custom name for the new user in the 'Name' field.
2. Click the 'Add' button.
3. Click the 'Edit' button next to the newly created user.



The SNMP user configuration window should look similar to this:



**Note:** this table has coloring scheme to indicate which fields can be seen with different configuration.

Field	Value	Description
Enable	off   on; default: <b>off</b>	Turns this SNMP user on or off.
Username	string; default: <b>none</b>	Set username to access SNMP.
Security level	No authentication, no privacy   <b>Authentication, no privacy</b>   <b>Authentication and privacy</b> ; default: <b>No authentication, no privacy</b>	A security level is an authentication strategy that is set up for the user. No authentication, no privacy - authenticates with a username. Authentication - provides MD5 or SHA algorithms for authentication. Privacy - Provides DES or AES encryption.
Authentication type	<b>Authentication, no privacy</b>   <b>Authentication and privacy</b> : SHA   MD5; default: <b>SHA</b>	Set authentication type to use with SNMP v3.
Authentication passphrase	<b>Authentication, no privacy</b>   <b>Authentication and privacy</b> : string; default: <b>none</b>	Set authentication passphrase to generate key for SNMP v3.
Privacy type	<b>Authentication and privacy</b> : DES   AES; default: <b>DES</b>	Set privacy type to use with SNMP v3.
Privacy passphrase	<b>Authentication and privacy</b> : string; default: <b>none</b>	Set privacy passphrase to generate key for SNMP v3.
Access Mode	Read-Only   Read-Write; default: <b>Read-Only</b>	The access mode specifies the access the hosts in the community are allowed with respect to retrieving and modifying the MIB variables from a specific SNMP agent.
MIB subtree	string; default: <b>none</b>	Leave empty to access full MIB tree.

## Communities

The **SNMP Community** section is used to manage access rights. You can edit an SNMP community by clicking the 'Edit' button next to it:



This will redirect you to the community's configuration page.



Field	Value	Description
Community name	string; default: <b>none</b>	Name of the community.
IP Address	ip; default: <b>none</b>	IP address of the community.
IP Mask	ip; default: <b>none</b>	Netmask for IP of the community.

Access Mode      Read-Only | Read-Write; default: **Read-Only**      Access mode for current community.

SNMPv6 community configuration page:



Field	Value	Description
Community name string; default: <b>public</b>		Name of the community.
Source	ip6   domain name; default: <b>default</b>	Source of the community.
Access Mode	Read-Only   Read-Write; default: <b>Read-Only</b>	Access mode for current community.

## Trap Settings

**SNMP Traps** are used to send alert messages to a central collector, the “SNMP manager” when an important event happens. A benefit of using Traps for reporting alarms is that they trigger instantaneously, rather than waiting for a status request from the manager.

Trap settings page is divided in two sections - **Trap service settings** and **Trap rules**. Trap service settings lets you manage hosts which will get configured alert messages, Trap rules lets you manage rules which when triggered will send alerts.

### Trap Service Settings

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The **Trap Service Settings** is used to manage **hosts** which will be alerted when an SNMP trap is triggered. The host list is empty by default thus, to begin configuration you must first create at least one host.

Click the 'Add' button at the bottom-right side of the table to create a new host.



The newly added Host configuration should look similar to this:



Field	Value	Description
Host/IP	url   ip; default: <b>none</b>	Hostname or IP address to transfer SNMP traffic to.
Port	integer [0..65535]; default: <b>162</b>	Trap host's port number.
Community	string; default: <b>Public</b>	Name of the community to which the trap belongs.
Delete	- (interactive button)	Deletes the host next to the button.
off/on slider	off   on; default: <b>off</b>	Turns the host on or off. SNMP traffic is only sent to enabled hosts.

### Trap Rules

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**SNMP Trap Rules** are alerts that trigger when certain user-specified events occur. When the trigger event happens, the trap will notify known SNMP hosts.

You can create a new trap rule by clicking the 'Add' button.



You should be redirected to the rule's configuration page which should look something like this:



Above is an example of what rule configuration window looks like. Below is a table with detailed explanations on how to configure the rule and what each of the fields mean.

To avoid redundancy, screenshots for the other rules will not be provided, since the structures, syntax and the overall look of the configuration windows for each rule are very similar. Instead, only tables containing information on how to edit each rule will be provided.

### Signal strength

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Field	Value	Description
Enable	off   on; default: <b>off</b>	Enable or disable this rule.
Action	Signal strength trap	Rule will be triggered if signal strength falls below specified number.
Signal strength	integer [-130..0]; default: <b>none</b>	GSM signal's strength value in dBm, e.g. -85

### Connection type

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Field	Value	Description
Enable	off   on; default: <b>off</b>	Enable or disable this rule.
Action	Connection type trap	Rule will be triggered when connection type will change.

### Input/Output

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field name	value1	description
Enable	off   on; default: <b>off</b>	Enable or disable this rule.
Action	Input/Output trap	Rule will be triggered when specified input or output state will change.

### Events log

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Event	Event subtype	Description
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<b>Config change</b>	All   Specific config change; default: <b>all</b>	Informs on changes to the device's configuration.
<b>Reboot</b>	All   From Web UI   From ping reboot   From reboot scheduler   From button  From SMS; default: <b>All</b>	Informs on if the device was rebooted.
<b>Startup</b>	Device startup completed	Informs on when the device is fully booted.
<b>Mobile data</b>	All   Connected   Disconnected; default <b>All</b>	Informs on changes to the state of the device's mobile connection.
<b>New DHCP client</b>	All   Connected from LAN  Connected from WiFi; default <b>All</b>	Informs on new DHCP lease give outs.
<b>Ports state</b>	All   Link speed   Link state   Unplugged   Plugged in   Specific port; default: <b>All</b>	Informs on Ethernet port state (plugged in or unplugged) or speed (100 Mbps or 1000 Mbps) changes.
<b>Reboot</b>	All   From button   From Input/Output   From Ping Reboot   From Reboot Scheduler   From WebUI   From SMS; default: <b>All</b>	Informs after device reboot occurrences.
<b>Signal strength</b>	All   - 121 dBm - 113 dBm   - 113 dBm - 98 dBm   - 98 dBm - 93 dBm   - 93 dBm - 75 dBm   - 75 dBm - 60 dBm   - 60 dBm - 50 dBm; default: <b>All</b>	Informs on signal strength changes.
<b>SMS</b>	SMS received	Informs on received SMS messages.
<b>SSH</b>	All   Successful authentication   Unsuccessful authentication; default: <b>All</b>	Informs on successful or unsuccessful SSH login attempts.
<b>Topology state</b>	Topology changes	Informs on changes to the device's network topology.
<b>WebUI</b>	ALL   Successful authentication   Unsuccessful authentication; default: <b>All</b>	Informs on successful or unsuccessful HTTP/HTTPS login attempts.
<b>New WiFi client</b>	All   Connected   Disconnected; default: <b>All</b>	Informs on new WiFi clients. Possible triggers are:

## SNMP variables list

<b>Name</b>	<b>OID</b>	<b>Description</b>
<b>Device</b>		
serial	.1.3.6.1.4.1.48690.1.1.0	Device serial number
routerName.0	.1.3.6.1.4.1.48690.1.2.0	Device name
productCode	.1.3.6.1.4.1.48690.1.3.0	Device product (ordering) code
batchNumber	.1.3.6.1.4.1.48690.1.4.0	Device batch number
hardwareRevision	.1.3.6.1.4.1.48690.1.5.0	Device hardware revision
fwVersion	.1.3.6.1.4.1.48690.1.6.0	Device RutOS firmware version
deviceUptime	.1.3.6.1.4.1.48690.1.7.0	Device uptime
<b>Mobile</b>		
modemNum	.1.3.6.1.4.1.48690.2.1.0	The number of modems (regardless of their current state) present on this system
mIndex	.1.3.6.1.4.1.48690.2.2.1.1.1	Available modem indexes; used to index OIDs between when the device has multiple modems
mDescr	.1.3.6.1.4.1.48690.2.2.1.2.1	Modem description
mImei	.1.3.6.1.4.1.48690.2.2.1.3.1	Modem IMEI
mModel	.1.3.6.1.4.1.48690.2.2.1.4.1	Modem model
mManufacturer	.1.3.6.1.4.1.48690.2.2.1.5.1	Modem manufacturer
mRevision	.1.3.6.1.4.1.48690.2.2.1.6.1	Modem firmware version
mSerial	.1.3.6.1.4.1.48690.2.2.1.7.1	Modem serial number
mIMSI	.1.3.6.1.4.1.48690.2.2.1.8.1	Modem IMSI number
mSimState	.1.3.6.1.4.1.48690.2.2.1.9.1	SIM card status
mPinState	.1.3.6.1.4.1.48690.2.2.1.10.1	PIN status
mNetState	.1.3.6.1.4.1.48690.2.2.1.11.1	Mobile network registration status

mSignal	.1.3.6.1.4.1.48690.2.2.1.12.1	Signal strength level
mOperator	.1.3.6.1.4.1.48690.2.2.1.13.1	Current mobile network operator
mOperatorNumber	.1.3.6.1.4.1.48690.2.2.1.14.1	Mobile operator number (MCC+MNC)
mConnectionState	.1.3.6.1.4.1.48690.2.2.1.15.1	Mobile data connection state
mConnectionType	.1.3.6.1.4.1.48690.2.2.1.16.1	Mobile data connection type
mTemperature	.1.3.6.1.4.1.48690.2.2.1.17.1	Modem's temperature in 0.1 degrees Celsius
mCellID	.1.3.6.1.4.1.48690.2.2.1.18.1	Cell (Base transceiver station) ID
mSINR	.1.3.6.1.4.1.48690.2.2.1.19.1	SINR value in dB
mRSRP	.1.3.6.1.4.1.48690.2.2.1.20.1	RSRP value in dBm
mRSRQ	.1.3.6.1.4.1.48690.2.2.1.21.1	RSRQ value in dB
mSent	.1.3.6.1.4.1.48690.2.2.1.22.1	Total bytes sent
mReceived	.1.3.6.1.4.1.48690.2.2.1.23.1	Total bytes received
mIP	.1.3.6.1.4.1.48690.2.2.1.24.1	Modem IP address(es)
mSentToday	.1.3.6.1.4.1.48690.2.2.1.25.1	Bytes sent today
mReceivedToday	.1.3.6.1.4.1.48690.2.2.1.26.1	Bytes received today
mICCID	.1.3.6.1.4.1.48690.2.2.1.27.1	SIM ICCID
mSentCurrentWeek	.1.3.6.1.4.1.48690.2.2.1.28.1	Bytes sent this week
mReceivedCurrentWeek	.1.3.6.1.4.1.48690.2.2.1.29.1	Bytes received this week
mSentCurrentMonth	.1.3.6.1.4.1.48690.2.2.1.30.1	Bytes sent this month
mReceivedCurrentMonth	.1.3.6.1.4.1.48690.2.2.1.31.1	Bytes received this month
connectionUptime	.1.3.6.1.4.1.48690.2.3.0.1	Mobile connection uptime
<b>Mobile notifications</b>		
signalChangeNotification	.1.3.6.1.4.1.48690.4.1.1	Signal strength trap
networkTypeNotification	.1.3.6.1.4.1.48690.4.1.2	Network type trap
<b>Input/Output notifications</b>		
digitalInputNotification	.1.3.6.1.4.1.48690.4.2.1	Digital input trap
digitalOutputNotification	.1.3.6.1.4.1.48690.4.2.2	Digital output trap
<b>Hotspot Notifications</b>		
clientConnectedNotification	.1.3.6.1.4.1.48690.4.3.1	Hotspot client connected trap
clientDisconnectedNotification	.1.3.6.1.4.1.48690.4.3.2	Hotspot client disconnected trap
<b>Hotspot</b>		
hsState	.1.3.6.1.4.1.48690.5.1.0	Current Hotspot state
hsIP	.1.3.6.1.4.1.48690.5.2.0	Hotspot IP address
hsNet	.1.3.6.1.4.1.48690.5.3.0	WiFi interface ID
hsAuth	.1.3.6.1.4.1.48690.5.4.0	Hotspot authentication type
hsSessionCount	.1.3.6.1.4.1.48690.5.5.0	Hotspot current active session (connected user) count
<b>Hotspot Sessions</b>		
hssIndex	.1.3.6.1.4.1.48690.5.6.1.1.1	Connected Hotspot user indexes
hssMAC	.1.3.6.1.4.1.48690.5.6.1.2.1	Hotspot user MAC addresses
hssIP	.1.3.6.1.4.1.48690.5.6.1.3.1	Hotspot user local IP addresses
hssID	.1.3.6.1.4.1.48690.5.6.1.4.1	Hotspot user session unique IDs
hssUsername	.1.3.6.1.4.1.48690.5.6.1.5.1	Hotspot connected user usernames
hssState	.1.3.6.1.4.1.48690.5.6.1.6.1	Hotspot user session states
hssDwLimit	.1.3.6.1.4.1.48690.5.6.1.7.1	Hotspot user download limits
hssUpLimit	.1.3.6.1.4.1.48690.5.6.1.8.1	Hotspot user upload limits
hssTimeLimit	.1.3.6.1.4.1.48690.5.6.1.9.1	Hotspot user session time limit
hssIdleTimeout	.1.3.6.1.4.1.48690.5.6.1.10.1	Hotspot user maximum idle timeout values
hssDwBandwidth	.1.3.6.1.4.1.48690.5.6.1.11.1	Hotspot user maximum download speed
hssUpBandwidth	.1.3.6.1.4.1.48690.5.6.1.12.1	Hotspot user maximum upload speed
hssURL	.1.3.6.1.4.1.48690.5.6.1.13.1	Hotspot URL
<b>Input/Output</b>		
ioCount	.1.3.6.1.4.1.48690.6.1	Count of I/O
ioTable	.1.3.6.1.4.1.48690.6.2	A list of I/O. The number of entries is given by the value of ioCount
ioEntry	.1.3.6.1.4.1.48690.6.2.1	An entry containing information of a particular I/O
ioIndex	.1.3.6.1.4.1.48690.6.2.1.1	A unique value, greater than zero, for each session
ioSystemName	.1.3.6.1.4.1.48690.6.2.1.2	The name of the I/O
ioName	.1.3.6.1.4.1.48690.6.2.1.3	The name of the I/O, as displayed in WebUI
ioType	.1.3.6.1.4.1.48690.6.2.1.4	A description of I/O type
ioBidirectional	.1.3.6.1.4.1.48690.6.2.1.5	Is I/O bidirectional?
ioState	.1.3.6.1.4.1.48690.6.2.1.6	State of I/O
ioInput	.1.3.6.1.4.1.48690.6.2.1.7	Is I/O an input?
ioInverted	.1.3.6.1.4.1.48690.6.2.1.8	Is value of I/O inverted?
ioCurrent	.1.3.6.1.4.1.48690.6.2.1.9	Current amount flowing though ACL
ioPercentage	.1.3.6.1.4.1.48690.6.2.1.10	Percentage of ACL
ioStateNumeric	.1.3.6.1.4.1.48690.6.2.1.11	Numeric state of I/O
<b>Wireless</b>		
radioCount	.1.3.6.1.4.1.48690.7.1	Amount of wireless radios
radioTable	.1.3.6.1.4.1.48690.7.2	A list of wireless radios
radioEntry	.1.3.6.1.4.1.48690.7.2.1	An entry containing information of a particular wireless radio
radioIndex	.1.3.6.1.4.1.48690.7.2.1.1	A unique value, greater than zero, for each wireless radio

radioName	.1.3.6.1.4.1.48690.7.2.1.2	The name of the wireless radio
radioUpState	.1.3.6.1.4.1.48690.7.2.1.3	Is the radio currently turned on?
radioDisabledState	.1.3.6.1.4.1.48690.7.2.1.4	Is the radio currently disabled?
radioChannel	.1.3.6.1.4.1.48690.7.2.1.5	Current active channel of the wireless radio
wfIfaceCount	.1.3.6.1.4.1.48690.7.3	Amount of wireless interfaces
wfIfaceTable	.1.3.6.1.4.1.48690.7.4	A list of wireless interfaces
wfIfaceEntry	.1.3.6.1.4.1.48690.7.4.1	An entry containing information of a particular wireless interface
wfIfaceIndex	.1.3.6.1.4.1.48690.7.4.1.1	The SSID of a wireless interface
wfIfaceSSID	.1.3.6.1.4.1.48690.7.4.1.2	The SSID of a wireless interface
wfIfaceHidden	.1.3.6.1.4.1.48690.7.4.1.3	Is the wireless interface hidden?
wfIfaceEncryption	.1.3.6.1.4.1.48690.7.4.1.4	The encryption used by the wireless interface
wfIfaceMode	.1.3.6.1.4.1.48690.7.4.1.5	The mode of the wireless interface
<b>Port based vlan</b>		
pVlanCount	.1.3.6.1.4.1.48690.8.1	Amount of port-based virtual networks
pVlanTable	.1.3.6.1.4.1.48690.8.2	A list port-based virtual networks
pVlanEntry	.1.3.6.1.4.1.48690.8.2.1	An entry containing information about a port-based VLAN
pVlanIndex	.1.3.6.1.4.1.48690.8.2.1.1	The index of the port-based VLAN
pVlanNum	.1.3.6.1.4.1.48690.8.2.1.2	The vlan number of the port-based VLAN
pVlanPorts	.1.3.6.1.4.1.48690.8.2.1.3	The assigned ports of the port-based VLAN
pVlanVID	.1.3.6.1.4.1.48690.8.2.1.4	The vlan ID of the port-based VLAN
<b>Interface based vlan</b>		
iVlanCount	.1.3.6.1.4.1.48690.8.3	Amount of interface-based virtual networks
iVlanTable	.1.3.6.1.4.1.48690.8.4	A list interface-based virtual networks
iVlanEntry	.1.3.6.1.4.1.48690.8.4.1	An entry containing information about an interface-based VLAN
iVlanIndex	.1.3.6.1.4.1.48690.8.4.1.1	The index of an iface-based VLAN
iVlanName	.1.3.6.1.4.1.48690.8.4.1.2	The name of an iface-based VLAN
iVlanType	.1.3.6.1.4.1.48690.8.4.1.3	The type of an iface-based VLAN
iVlanIfName	.1.3.6.1.4.1.48690.8.4.1.4	The interface name of an iface-based VLAN
iVlanVID	.1.3.6.1.4.1.48690.8.4.1.5	The VLAN ID of an iface-based VLAN
<b>Smart Queue Management</b>		
queueCount	.1.3.6.1.4.1.48690.9.1	Amount of traffic shaping configs
queueTable	.1.3.6.1.4.1.48690.9.2	A list of traffic shaping configs
queueEntry	.1.3.6.1.4.1.48690.9.2.1	Entry containg info of a traffic shaping config
queueIndex	.1.3.6.1.4.1.48690.9.2.1.1	The index of the queue
queueName	.1.3.6.1.4.1.48690.9.2.1.2	The internal name of the queue
queueEnabled	.1.3.6.1.4.1.48690.9.2.1.3	Is the queue enabled?
queueIface	.1.3.6.1.4.1.48690.9.2.1.4	The assigned interface of the queue
queueDownLimit	.1.3.6.1.4.1.48690.9.2.1.5	The download limit of the queue
queueUpLimit	.1.3.6.1.4.1.48690.9.2.1.6	The upload limit of the queue
queueQdisk	.1.3.6.1.4.1.48690.9.2.1.7	The queuing discipline in use for this queue
queueScript	.1.3.6.1.4.1.48690.9.2.1.8	The queuing discipline setup script used in this queue
<b>Port</b>		
portCount	.1.3.6.1.4.1.48690.10.1.0	Number of ports on device
portTable	.1.3.6.1.4.1.48690.10.2.0	A list of port entries. The number of entries is given by the value of portCount
portEntry	.1.3.6.1.4.1.48690.10.2.1.0	An entry containing information of a particular port
pIndex	.1.3.6.1.4.1.48690.10.2.1.1	A unique value, greater than zero, for each port
pName	.1.3.6.1.4.1.48690.10.2.1.2	Port's name
pNumber	.1.3.6.1.4.1.48690.10.2.1.3	Port's number
pPosition	.1.3.6.1.4.1.48690.10.2.1.4	Port's physical position
pState	.1.3.6.1.4.1.48690.10.2.1.5	Port's state
pSpeed	.1.3.6.1.4.1.48690.10.2.1.6	Port's speed
pDuplex	.1.3.6.1.4.1.48690.10.2.1.7	Boolean value whether port is duplex or not