Serial Server Monitoring Protocol

Version 1.26

Updated on 2014/12/02

Atop Technologies, Inc.

Important Announcement

Published by

Atop Technologies, Inc.

2F, No. 146, Sec. 1, Tung-Hsing Rd.
Jubei City, Hsinchu 302
Taiwan, R.O.C.
Tel: 886-3-5508137
Fax: 886-3-5508131
www.atop.com.tw

Revision History

V0.01:	2003/10/15, Initial Version
V1.0:	2007/02/06, Updated Version
V1.10:	2011/12/20, Increase cable replacement command
V1.20:	2011/12/21, Add country code setting in “WIRELESS-CONFIGURE” command
V1.21:	2011/12/22, Rearrange the data structure in “WIRELESS-CONFIGURE” command and append one field for the encryption key value
V1.22	Increase area code in “WIRELESS-CONFIGURE” command Add AW-SW, SW-SW click-to-go settings in “WIRELESS-CONFIGURE” command
V1.23	Add reset function in “WIRELESS-CONFIGURE” command
V1.24	Modify the data for the "Report" command
V1.25	2014/12/01 Add "RING-CONFIGURE" command
V1.26	2014/12/02 Add "New Subnet Mask" in RING-CONFIGURE command

Contents

1. Introduction

This document contains the control format and protocol between serial server (Device) and host computer (Host). Its purpose is to get the informations of ATOP serial servers. We use UDP mechanism for searching devices. Each device opens one UDP connection with port number **55954**(0xda92) to report 'who I am' and receive some control commands.

The UDP port 55954 is used to configure the IP, Gateway and Net Mask. The RESET and BEEP functions are also included.

For Switch utility, UDP port **55955**(0xda93) is increased to report all port status from LLDP protocol. There are

2. Control Format of Searching Devices

(1) Using UDP datagram with BOOTP control format.
(2) Upon power on the device, the device will report (broadcast) 'who I am' automatically.
(3) Host can issue 'invite' (broadcast) command to know who is in the network.
(4) Message type definition:

Host -> Device

INVITE **(OP=0x02):** Invite all devices in the same segment to report their configurations.
CONFIG **(OP=0x00):** Set device into new configuration and then reset it For example, changing IP address.
RESET **(OP=0x05):** Reset device
BEEP **(OP=0x07):** Locate device

Device -> Host

REPORT **(OP=0x01):** Send after an INVITE message is received or system startup
ACK **(OP=0x03):** Send after a RESET message is received

The configuration phases

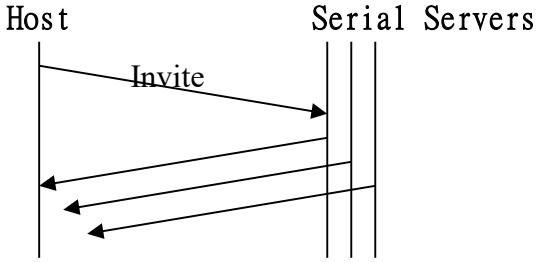

Figure 1 The phases of invite all Serial Server to report their configurations

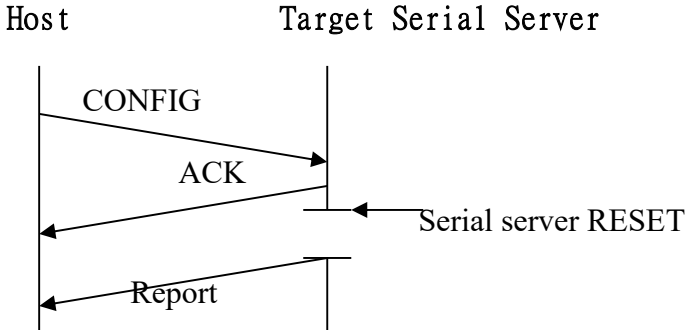

Figure 2 The phases of configure a Serial Server

2.1 Message format of 'INVITE'

OP=2	HTYPE==0x01	HLEN==0x06	0x00(**unused**)
ID==0x0000DA92(4 Bytes)			
0x0000(**unused**)		0x0000(**unused**)	
Device's IP Address (4 Bytes, **unused**)			
Device's New IP Address (4 Bytes, **unused**)			
Reserved (4 Bytes, **unused**)			
Gateway IP Address (4 Bytes, **unused**)			
MAC Address (16 Bytes, **unused**)			
Extend Configuration Data (64 Bytes, **unused**)			
Version Area (128 Bytes, **unused**)			
Vendor-Specific Area (64 Bytes, **unused**)			

Note: About unused data, please set all to 0.

2.2 Message format of 'REPORT'

This is for response message of 'INVITE' or report message of startup.

OP=1	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address (4 Bytes)			
Device's New IP Address (4 Bytes, **unused**)			
Reserved (4 Bytes, **unused**)			
Gateway IP Address (4 Bytes)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-15 : **Model Name** Offset 16-43 : Reserved Offset 44 :**CPU Type** : 1 - 80186; 2 - MEGA; 3 - IDT; 4 - MPC/TI Offset 45 :**Country Code** Offset 46-61 : **Host Name** Offset 62 : **DHCP Enabled Flag** Offset 63 : **Number of serial ports provided by device**			
Version Area (128 Bytes) Offset 0 : **Minor version of kernel** Offset 1 : **Major version of kernel** Offset 2-127 : **AP version**			
Vendor-Specific Area (64 Bytes) Offset 0-3 : **Subnet Mask** Offset 4-63 : Reserved			

2.3 Message format of 'CONFIG'

<table>
<tr><td>OP=0</td><td>HTYPE==0x01</td><td>HLEN==0x06</td><td>0x00(Unused)</td></tr>
<tr><td colspan="4">ID==0x0000DA92(4 Bytes)</td></tr>
<tr><td colspan="2">0x0000(Unused)</td><td colspan="2">0x0000(Unused)</td></tr>
<tr><td colspan="4">Device's Old IP Address (4 Bytes)</td></tr>
<tr><td colspan="4">Device's New IP Address (4 Bytes, 0.0.0.0 is for DHCP mode)</td></tr>
<tr><td colspan="4">Reserved (4 Bytes, unused)</td></tr>
<tr><td colspan="4">New Gateway IP Address (4 Bytes)</td></tr>
<tr><td colspan="4">MAC Address (16 Bytes)
Offset 0-5 : Device MAC address
Offset 6-15 : Reserved</td></tr>
<tr><td colspan="4">Extend Configuration Data (64 Bytes)
Offset 0-25 : Reserved
Offset 26 : 0->No Password,
1->following is Password Only (username is 'admin')
2-> following are User Name + Password
Offset 27-44 : Password or (User Name + Password),
Note: Must be with null terminator.
Offset 45 : Reserved
Offset 46-61 : Host Name
Offset 59-63 : Reserved</td></tr>
<tr><td colspan="4">Version Area (128 Bytes)
Offset 0-127 : Reserved</td></tr>
<tr><td colspan="4">Vendor-Specific Area (64 Bytes)
Offset 0-3 : New Subnet Mask
Offset 4-18 : Reserved
Offset 19 : Must be 0xFF
Offset 20-63 : Reserved ***</td></tr>
</table>

2.4 Message format of 'ACK'

This is for response message of 'CONFIG' or 'RESET' ~~or "WIRELESSCONFIG"~~.

OP=3	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address (4 Bytes)			
Device's New IP Address (4 Bytes, **unused**)			
Reserved (4 Bytes, **unused**)			
Gateway IP Address (4 Bytes)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-63 : Reserved			
Version Area (128 Bytes) Offset 0-127 : Reserved **l**			
Vendor-Specific Area (64 Bytes) Offset 0-3 : **Subnet Mask** Offset 4-63 : Reserved			

2.5 Message format of 'RESET'

OP=5	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address (4 Bytes)			
Device's New IP Address (4 Bytes, **unused**)			
Reserved (4 Bytes, **unused**)			
Gateway IP Address (4 Bytes, **unused**)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-25 : Reserved Offset 26 : 0->No Password, 1->following is **Password Only** (username is 'admin') 2-> following are User Name + Password Offset 27-44 : **Password** or (User Name + Password), **Note**: Must be with null terminator. Offset 35-63 : Reserved			
Version Area (128 Bytes) Offset 0-127 : Reserved **l**			
Vendor-Specific Area (64 Bytes) Offset 0-63 : Reserved			

2.6 Message format of 'BEEP'

OP=7	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address (4 Bytes)			
Device's New IP Address (4 Bytes, **unused**)			
Reserved (4 Bytes, **unused**)			
Gateway IP Address (4 Bytes, **unused**)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-63 : Reserved			
Version Area (128 Bytes) Offset 0-127 : Reserved **l**			
Vendor-Specific Area (64 Bytes) Offset 0-63 : Reserved			

2.7 Message format of 'WIRELESS-CONFIG'

OP=11	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address (4 Bytes)			
Device's **New IP** Address (**unused**)			
Reserved (4 Bytes, **unused**)			
New Gateway IP Address (4 Bytes, **unused**)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-25 : Reserved Offset 26 : 0->No Password, 1->following is **Password Only** (username is 'admin') 2-> following are User Name + Password Offset 27-44 : **Password** or (User Name + Password), **Note**: Must be with null terminator. Offset 45 : Reserved Offset 46-61 : **Host Name** Offset 59-63 : Reserved			
Version Area (128 Bytes) Offset 0 : Command : 0 – request; 1 – set, 2 – reset (for unclick-2-go) Offset 1 : Mode : 0 – Normal AP; 1 – AP client; 2 – Bridge; 3 – AP+Bridge; 4 – Repeater; 5 - Station 10 - Root-AP, others – WDA stations (from 11~17) Offset 2~34 : SSID – SSID string Offset 35 : Wireless mode: 0 – 802.11b; 1 – 802.11b/g; 2 – 802.11a; 3 – 802.11b/g/n; 4 – 802.11a/n; 5 - 802.11b/g/n 40MHz; 6 – 802.11a/n 40MHz Offset 36~37 : Transmission rate; 0 - AUTO Offset 38~39 : Channel no. + Secondary channel no. (for 11n only) 0 - AUTO Offset 40 : Operation mode: 0 – Infrastructure; 1 – Ad-hoc Offset 41 : Encryption method: 0 – None; 1 – WEP_64; 2 – WEP_128; 3 – WPA_PSK_TKIP; 4 – WPA_PSK_AES; 5 – WPA_TKIP; 6 – WPA_AES; 7 – WPA2_PSK_TKIP; 8 – WPA2_PSK_AES; 9 – WPA2_TKIP; 10 – WPA2_AES 16 - WPS Offset 42~73 : Encryption key value Offset 74~77 : Radius server IP Offset 78~79 : Radius server port Offset 80 : Beacon ON/OFF: 0 – off; others – on Offset 81 : Fast roaming ON/OFF: 0 – off; others – on Offset 82 : Fast handoff ON/OFF; 0 – off; others – on Offset 83 : Radio ON/OFF: 0 – off; others - on Offset 84 : Country code: 0 – Taiwan; 1 – US; 2 – EU; 3 – Mainland; 4 -			

Japan Offset 85~126 : WDS MAC address- 7*6 bytes; the 1st is Root if Root is not itself ***Note: If the first byte of each field is 0xFF, then the field is invalid!***
Vendor-Specific Area (64 Bytes) Offset 0-63 : Reserved

For Click_2_Go function,

1. AW5500 – AW5500 :

Version Area (128 Bytes)	
Offset 0	: 1 – set
Offset 1	: 10 - Root-AP, or 11 WDA stations
Offset 2~34	: SSID – SSID string
Offset 35	: 6 – 802.11a/n 40MHz
Offset 36~37	: 0 - AUTO
Offset 38~39	: 0 - AUTO
Offset 40	: 0 – Infrastructure
Offset 41	: 8 – WPA2_PSK_AES
Offset 42~73	: Encryption key value
Offset 74~77	: *invalid*
Offset 78~79	: *invalid*
Offset 80	: *invalid*
Offset 81	: *invalid*
Offset 82	: *invalid*
Offset 83	: *invalid*
Offset 84	: Country code:
Offset 85~126	: WDS MAC address of another AW5500

2. SW550X – SW550X

Version Area (128 Bytes)	
Offset 0	: 1 – set
Offset 1	: 5 - Station
Offset 2~34	: SSID – SSID string
Offset 35	: 2 – 802.11a
Offset 36~37	: 0 - AUTO
Offset 38~39	: 0 - AUTO
Offset 40	: 1 – Ad-hoc
Offset 41	: 2 – WEP_128
Offset 42~73	: Encryption key value (13 ASCII bytes)
Offset 74~77	: *invalid*
Offset 78~79	: *invalid*
Offset 80	: *invalid*
Offset 81	: *invalid*
Offset 82	: *invalid*
Offset 83	: *invalid*

Offset 84 : Country code:
Offset 85~126 : *invalid*

3. AW5500 – SW550X

Version Area (128 Bytes)

Offset 0 : 1 – set
Offset 1 : *invalid*
Offset 2~34 : *invalid*
Offset 35 : *invalid*
Offset 36~37 : *invalid*
Offset 38~39 : *invalid*
Offset 40 : *invalid*
Offset 41 : 16 - WPS
Offset 42~73 : *invalid*
Offset 74~77 : *invalid*
Offset 78~79 : *invalid*
Offset 80 : *invalid*
Offset 81 : *invalid*
Offset 82 : *invalid*
Offset 83 : *invalid*
Offset 84 : *invalid*
Offset 85~126 : *invalid*

2.8 Message format of 'RING-CONFIGURE'

OP=12	HTYPE==0x01	HLEN==0x06	0x00(Unused)
ID==0x0000DA92(4 Bytes)			
0x0000(Unused)		0x0000(Unused)	
Device's **IP** Address			
Device's **New IP** Address (4 Bytes, 0.0.0.0 is for DHCP mode)			
Reserved (4 Bytes, **unused**)			
New Gateway IP Address (4 Bytes)			
MAC Address (16 Bytes) Offset 0-5 : Device **MAC address** Offset 6-15 : Reserved			
Extend Configuration Data (64 Bytes) Offset 0-25 : Reserved Offset 26 : 0->No Password, 1->following is **Password Only** (username is 'admin') 2-> following are User Name + Password Offset 27-44 : **Password** or (User Name + Password), **Note**: Must be with null terminator. Offset 45 : Reserved Offset 46-61 : **Host Name** Offset 59-63 : Reserved			
Version Area (128 Bytes) Offset 0 : Command : 0 – request; 1 – set Offset 1 : Ring Type : 0 – No; 1 – ERPS; 2 - IA-Ring; 3 - Compatible-Ring; 4 - U-Ring; 5 - Compatible-Chain; 6 - UERPS Offset 2 : ERPS Log: 1 - enabled; 0 - disabled Offset 3~4 : Heartbeat Interval; unit - mini-second Offset 5~6 : RAPS VLAN id (default 4090) Offset 7 : West Port No.(1st port) Offset 8 : East Port No. (2nd Port) Offset 9 : Port role: 0 - non-master, member; 1 - RPL Owner Port, Master Port;, Head Port; 2 - Tail port Offset 10 : Port No. if Port role is nonzero: 1 - West Port; 2 - East Port; Offset 11~12 : Delay time before active; unit - mini-second Offset 13~14 : 2nd RAPS VLAN id (till Offset 18); 0xFF => none Offset 15 : West Port No.(1st port) Offset 16 : East Port No. (2nd Port) Offset 17 : Port role: 0 - non-master, member; 1 - RPL Owner Port, Master Port;, Head Port; 2 - Tail port Offset 18 : Port No. if Port role is nonzero: 1 - West Port; 2 - East Port; ***Note: If the first byte of each field is 0xFF, then the field is invalid!***			

Vendor-Specific Area (64 Bytes)	
Offset 0-3	: **New Subnet Mask**
Offset 4-18	: Reserved
Offset 19	: **Must be 0xFF**
Offset 20-63	: Reserved ***