Serial Server Monitoring Protocol

Version 1.26

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Atop Technologies, Inc.



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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



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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

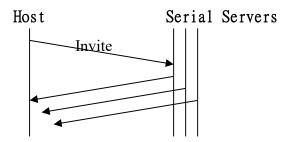


Figure 1 The phases of invite all Serial Server to report their configurations

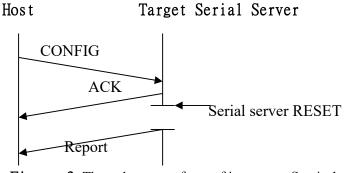


Figure 2 The phases of configure a Serial Server



2.1 Message format of 'INVITE'

OP=2	HTYPE==0x01	HLEN==0x06	0x00(unused)			
	ID=0x0000DA92(4 Bytes)					
0x0000(0x0000(unused)					
	Device's IP Addres	s (4 Bytes, unused)				
D	evice's New IP Add	ress (4 Bytes, <mark>unuse</mark>	d)			
	Reserved (4 E	Bytes, unused)				
	Gateway IP Addres	s (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.

for response if	icssag	c or maying or rep	port message or start	ւսբ.		
OP=1		HTYPE==0x01	HLEN==0x06	0x00(Unused)		
		ID==0x0000E	DA92(4 Bytes)			
0x	0x0000(Unused)					
	•	Device's IP Ad	ldress (4 Bytes)	,		
	D	evice's New IP Addı	ress (4 Bytes, unuse	ed)		
			Bytes, unused)	,		
		,	ddress (4 Bytes)			
			ess (16 Bytes)			
Offset 0-5	: Dev	vice MAC address	, ,			
Offset 6-15	: Res	served				
		Extend Configuration	on Data (64 Bytes)			
Offset 0-15	: M o	del Name	` '			
Offset 16-43	: Res	: Reserved				
Offset 44						
Offset 45						
Offset 46-61	ffset 46-61 : Host Name					
Offset 62	set 62 : DHCP Enabled Flag					
Offset 63	et 63 : Number of serial ports provided by device					
		Version Area	a (128 Bytes)			
Offset 0	: Mi	nor version of kern	nel			
Offset 1	: M a	ajor version of kern	nel			
Offset 2-127		•				
		*	Area (64 Bytes)			
Offset 0-3	: Sul	onet Mask				
Offset 4-63	: Res	served				



2.3 Message format of 'CONFIG'

OP=0		HTYPE==0x01	HLEN==0x06	0x00(Unused)			
	ID=0x0000DA92(4 Bytes)						
0x	0x0000(Unused) 0x0000(Unused)						
		Device's Old IP	Address (4 Bytes)				
Devie	ce's N	ew IP Address (4 By	ytes, 0.0.0.0 is for D	HCP mode)			
			Bytes, unused)				
			Address (4 Bytes)				
			ess (16 Bytes)				
Offset 0-5		vice MAC address					
Offset 6-15		served					
		Extend Configuration	on Data (64 Bytes)				
Offset 0-25	: Res	served					
Offset 26		No Password,					
		<u> </u>	ord Only (username	e is 'admin')			
		> following are Use:					
Offset 27-44		ssword or (User Nai					
		ote: Must be with nu	ıll terminator.				
Offset 45							
		: Host Name					
Offset 59-63	: Res	served					
		Version Area	a (128 Bytes)				
Offset 0-127	: Res		. (1 2 0 2) (100)				
	. 100	,01,04					
	Vendor-Specific Area (64 Bytes)						
Offset 0-3	: New Subnet Mask						
Offset 4-18							
		ust be 0xFF					
Offset 20-63	: Res	: Reserved ***					
1							



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)						
0x)0000	Unused)	0x0000(Unused)			
		Device's IP Ad	ldress (4 Bytes)				
	D	evice's New IP Addı	ress (4 Bytes, unuse	d)			
		Reserved (4 B	Sytes, unused)				
		Gateway IP Ac	ddress (4 Bytes)				
		MAC Addre	ess (16 Bytes)				
Offset 0-5	: De	vice MAC address					
Offset 6-15	Offset 6-15 : Reserved						
		Extend Configuration	on Data (64 Bytes)				
Offset 0-63 : Reserved							
	Version Area (128 Bytes)						
Offset 0-127 : Reserved I							
Vendor-Specific Area (64 Bytes)							
Offset 0-3	: Sul	onet Mask					
Offset 4-63 : Reserved							



2.5 Message format of 'RESET'

OP=5	HTYPE==0x01	HLEN==0x06	0x00(Unused)				
	ID=0x0000DA92(4 Bytes)						
0x000	0(Unused)	0x0000((Unused)				
	Device's IP Ad	ldress (4 Bytes)					
	Device's New IP Adda	ress (4 Bytes, unuse	d)				
	Reserved (4 B	Sytes, unused)					
	Gateway IP Addres	s (4 Bytes, unused)					
	MAC Addre	ess (16 Bytes)					
	Device MAC address						
Offset 6-15 : F	Reserved						
	Extend Configuration	on Data (64 Bytes)					
Offset 0-25 : F	Reserved						
Offset 26 : 0)->No Password,						
	1->following is Passw	• `	e is 'admin')				
	2-> following are User Name + Password						
	44 : Password or (User Name + Password),						
	Note : Must be with nu	ll terminator.					
Offset 35-63 : F	Reserved						
	Version Area (128 Bytes)						
Offset 0-127 : F	· /						
	Vendor-Specific	Area (64 Bytes)					
Offset 0-63 : F	Reserved	· /					

2.6 Message format of 'BEEP'

OP=7		HTYPE==0x01	HLEN==0x06	0x00(Unused)		
		ID = 0x00000I	DA92(4 Bytes)			
0x	0000(Unused)	0x00000	(Unused)		
		Device's IP Ac	ldress (4 Bytes)			
	D	evice's New IP Add	ress (4 Bytes, unus e	ed)		
		Reserved (4 E	Bytes, unused)			
		Gateway IP Addres	s (4 Bytes, unused)	·		
		MAC Addre	ess (16 Bytes)			
Offset 0-5	: De	vice MAC address				
Offset 6-15	: Res	served				
		Extend Configuration	on Data (64 Bytes)			
Offset 0-63	Offset 0-63 : Reserved					
Version Area (128 Bytes)						
Offset 0-127	Offset 0-127 : Reserved I					
	Vendor-Specific Area (64 Bytes)					
Offset 0-63	: Res	served				



2.7 Message format of 'WIRELESS-CONFIG'

OP=11	HTYPE==0x01
	ID=0x0000DA92(4 Bytes)
0x	0000(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)
0.00	MAC Address (16 Bytes)
Offset 0-5	: Device MAC address
Offset 6-15	: Reserved
0.00 + 0.25	Extend Configuration Data (64 Bytes)
Offset 0-25	: Reserved
Offset 26	: 0->No Password,
	1->following is Password Only (username is 'admin')
Officet 27 44	2-> following are User Name + Password
Offset 27-44	: Password or (User Name + Password), Note : Must be with null terminator.
Offset 45	
1	: Host Name
Offset 59-63	
Offset 39-03	. 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 - 802.11 a/n 40 MHz
Offset 36~37	,
Offset 38~39	: Channel no. + Secondary channel no. (for 11n only)
0.00 + 40	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 –
O115Ct 07	. Country code. $0 - 1$ arwaii, $1 - 0.5$, $2 - 1.0$, $3 - 1$ infamilatio, $4 - 1.0$



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 $2\sim34$: 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 - setOffset 1 : 5 - Station

Offset $2\sim34$: 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	5 : invalid				



2.8 Message format of 'RING-CONFIGURE'

OP=12	HTYPE==0x01	HLEN==0x06	0x00(Unused)			
ID=0x0000DA92(4 Bytes)						
0x0000(Unused)						
	Device's I	P Address	,			
Device	e's New IP Address (4 B	ytes, 0.0.0.0 is for I	OHCP mode)			
	Reserved (4 B	ytes, unused)				
	New Gateway IP	Address (4 Bytes)				
	MAC Addre	ss (16 Bytes)				
Offset 0-5	: Device MAC address					
Offset 6-15	: Reserved					
	Extend Configuration	n Data (64 Bytes)				
Offset 0-25	: Reserved					
Offset 26	: 0->No Password,					
	1->following is Passw		e is 'admin')			
	2-> following are User					
Offset 27-44		/ *				
	Note : Must be with nu	ll terminator.				
Offset 45						
	: Host Name					
Offset 59-63	: Reserved					
	Version Area	(128 Bytes)				
Offset 0	: Command : 0 – request	` '				
Offset 1			y•			
	3 - Compatible-Ring; 4 - U-Ring; 5 - Compatible-Chain;					
000 40	6 - UERPS	0 1 11 1				
Offset 2	: ERPS Log: 1 - enabled					
Offset 3~4	: Heartbeat Interval; unit					
Offset 5~6	: RAPS VLAN id (defau	/				
Offset 7	: West Port No.(1st port)					
Offset 8	: East Port No. (2nd Port	•				
Offset 9	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 a					
Offset 11~12	: Delay time before activ					
Offset 13~14	: 2nd RAPS VLAN id (ti					
Offset 15	: West Port No.(1st port)	/ /	, none			
Offset 16	: East Port No. (2nd Port					
Offset 17	: Port role: 0 - non-maste	·				
	1 - RPL Owner Port, N		Port: 2 - Tail port			
Offset 18	: Port No. if Port role is a	• • • • • • • • • • • • • • • • • • • •	•			
Note: If the fi	irst byte of each field is 0x	FF, then the field i	s 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 ***