

# AVCOMM Industrial Ethernet Firewall S2104 User Manual



## **AVCOMM Technologies Inc.**

## Industrial Ethernet Firewall S2104

# **User Manual**

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#### **About This Manual**

This user manual is intended to guide a professional installer to install and to configure the Avcomm industrial ethernet firewall. It includes procedures to assist you in avoiding unforeseen problems.

## 道 NOTE:

Only qualified and trained personnel should be involved with installation, inspection, and repairs of this device.

#### Disclaimer

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## **Document Introduction**

First of all, thank you for using AVCOMM industrial ethernet firewall!

The AVCOMM industrial ethernet firewall is a dedicated firewall device for industrial network perimeter protection with proprietary intellectual property rights, which is independently developed by AVCOMM. The device can effectively protect the information security of industrial control systems and equipment such as SCADA, DCS, PCS, PLC, and RTU. In addition to the security function of traditional firewalls, it also provides the built-in function of industrial communication protocol analysis and filtering and can adopt deep packet inspection technology and application layer communication tracking technology for industrial protocols to prevent illegal commands and block non-industrial control protocols in order to protect the controller.

This manual describes the usage of the AVCOMM industrial ethernet firewall in detail. The users could perform various management operations on the AVCOMM industrial ethernet firewall equipment according to this manual.



## **1** System Login and Registration

All management, configuration and monitoring of the AVCOMM industrial ethernet firewalls are completed on the WEB management platform.

## 1.1 Login

After the device starts, the industrial ethernet firewall without any security policy will work in the learning mode by default. In this state, the industrial ethernet firewall does not intercept any messages.

The management platform plugs the network cable into the MGMT port. The default management port IP address of the device is 192.168.4.2 for delivery. To access the industrial ethernet firewall through the management address https, the users need to log into the WEB management platform with the correct user credentials. The login interface and instructions are shown in Figure 1:



Figure 1

Name	Description
User name	A unique identifier used to distinguish user identities, created
	and maintained by a user with user management authority (such
	as sysuser, secuser, and loguser).
Password	User access password which can be modified by the user after
	correct login
Certificate file	The default users of the system need to import the factory
	certificate file to log into the system.

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Generate factory certificate | Click to generate the factory certificate

Note: The default user names and passwords of the system are as follows:

- System administrator user name: sysuser, password: talent123
- Security administrator user name: secuser, password: talent123
- Audit administrator user name: loguser, password: talent123

The users can complete the first login using the "generate factory certificate" on the login interface and can use their own login certificates to log into the device. For details, refer to 8.5.

NDUSTRIAL

The first login success interface of the WEB management platform is shown in Figure 2.

ID	Name	Role	Password	Password Confirmed		
1	sysuser	System Administrator	no change	no change		
2	secuser	Security Administrator	no change	no change		
3	loguser	Auditor Administrator	no change	no change		
Pa	Password must be include:					
2.F 3.0 4.1	i, rassword length mode than or squal to a. 2 Rassword length is as than or equal to 20. 3 Capital letters must be included. 4 Numbers must be included.					
6.5	L Suivituate International Control Con					
0.0	α, siliinoi teleis. ⊐i@neara α (L_i∽, ilinoi de ilinoidea).					



## 1.2 System setting wizard

The first login success interface of the industrial ethernet firewall is shown in Figure 2. It is recommended to modify the default administrator password in time after entering the system setting wizard. After the password is modified, click on the next page to enter the device setting. There are four working modes, and the default is the learning mode, as shown in Figure 3.

Work Mode
Test Mode 🔺
Normal Mode
Warning Mode
Test Mode
Bypass learning mode

Figure 3

Name	Description	
Learning mode	All packets can pass	
Warning mode	All packets can pass, but a warning log will be recorded for	
	abnormal packets matching the rules.	
Protection mode The packets are enabled and blocked according to ru		
	and those without rule matching are discarded	
Bypass learning mode	Analyze the data packets mirrored to the interface	



After completing the device setting, please click the next to enter the time setting, and directly click the next page if the system time is correct, as shown in FigureFigure 4.

3: DevicesTime		
2020-12-08 22:57:14	Get device time	Set time
Prov Next		

#### Figure 4

Click on the next page to enter the Syslog server setting. The users can choose to enable the Syslog server setting according to their needs. It is recommended that the users choose to enable the setting to monitor the industrial ethernet firewall's exception notifications and other details at any time, as shown in Figure 5:

Syslog Server	Syslog Port	Del Days		
	514	30		
Enable				
Prov Net				

#### Figure 5

After completing the setting, enter the next page and click the exit wizard button to complete the configuration. The interface is shown in Figure 6:



## **1.3 Function area description**

All business functions of the industrial ethernet firewall are selected through the function list of the interface, and the corresponding operations are performed in the main function operation area.

Taking this account as an example, the interface after logging into the system is shown in Figure

7:

- Operating area: Area module under current operation
- Function list: Module navigation bar



AVCOMM Industrial Ethernet I	Firewa	all 😐						Φ % <b>G</b>	🐑 superman 🗸
Dashboard		Dashboard							
사 HistoricalTraffic		Essential Information		Risk Assessment R	lisk level: Low risk		Equipment Health		
ProtectionSetting     ObjectManagement     StrategicManager     NetworkSetting     VintualPrivateNetwork     SysManager	~ ~ ~ ~ ~	Device Name: Device type: Devices5h ti: System Veraion: Running Time: Authorization status:	S2104 Industrial Ethernet Firewall 3271011703 V3.0 0:13:08 80 days	industrial control Network events System events Other events	l verts	Polasti i rosta eveni 0 00 Peterse sevel 0 00	-0- cp 18% 12% 9% 5- 5.2 0.4 9% 151028 151028 15103	4.9 6.4 2 1 15:10:34 15:10:37 15:	5.1 6.5
<ul> <li>Centralized</li> </ul>	~	Attack source	💿 1 day 📄 3 days 🔵 7 days	Alarm Monitoring			Log Statistics	<ul> <li>1 day</li> <li>3 dr</li> </ul>	ays 🔿 7 days
.⊞ LogAudit	~	IP Address	limes (lop10) No data	Order number	Category Atarms Number No data	Processing quantity		No data	
		Network card traffic							



Click button of displayed modules to customize the modules for display, select the corresponding option and click Save to display the content of the selected option, as shown in Figure 8:

Essential Information		Risk Assessment   Risk levet Low risk	Equipment Health
Device Name: Device type: Devices Sn kt: System Version: Running Time: Authorization status:	S2104 Industrial Ethernet Firewalt 3271011783 V3.0 0.48:18 88 days	<ul> <li>Industrial control events</li> <li>Periodic events</li> <li>Other events</li> <li>Other events</li> </ul>	
Attack source IP Address	1 day.     3 days     7 days     trmes (top10) No data	Essential Information      Risk Assessment     Equipment Health     Source of attack     Alar     Alar     Alar     Alar     Network card traffic	Log Statistics

Figure 8

Name	Description			
Network card	Display real-time network data flow, data packets and bytes passing			
traffic	through the system			
Essential	Display the name, model, serial number, system version, run time and			
Information	remaining authorized days of the device			
Risk assessment	Display the number and risk level assessment of industrial control			
	events, network events, system events and other events			
Equipment health	Display the usage status of the device's CPU, memory and disk			

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Source of attack	Display the statistical result of top10 blocked source IPs		
Alarm monitoring	Real-time display of the alarm quantity and processing quantity of		
	today's industrial control events, today's network events, today's other		
	events as well as all industrial control events, all network events and all		
	other events of the system		
Log statistics	Count and display the percentage of warnings, prompts, and errors		
	generated in the system with a pie chart		

## 1.4 Log out

Click on the Ouser name in the status bar and select logout to log out.

## **2** Historical Traffic

The system administrator (sysuser) can view the statistics of interface traffic in a day, the number of sessions in a day, the proportion of protocol traffic in a day, and the total device traffic statistics in a day, as shown in Figure 9:

Avcorn Industrial	Ethernet Fi	irewall	Ξ				_				۵ ×	: c (
Dashboard			HistoricalTraffic									hor
4- HistoricalTra	iffic		Interface traffic query		MGMT	· Date 2024-04-01		Protocol proportion query			Date	2024-04-01
ProtectionSe	etting		Traffic			-O- R	< -O- Tx					
ObjectMana	gement	~	1.5KB/s	$\square$								
StrategicMar	nager	~	1.2KB/s -									
NetworkSett	ting	~	0.9KB/S -		^					No data		
VirtualPrivati	eNetwork	~	0.6KE/s -	0								
24 SysManager	r.	~	U.3KB/S-		h							
<ul> <li>Centralized</li> </ul>		×	00:00:00 03:00:00	06:00:00 09:00:00	12:00:00 15:00:00	18:00:00 21:00:00	23:59:59					
i⊞ LogAudit		~	Session statistics			Date 2024-04-01		Total flow of equipment			Date	2024-04-01
			Number of sessions					Traffic	99			
			1individual					7MB 6MB	h			
								SMB-				
								4MB -		0		
								2MB -				

Figure 9	9
----------	---

Name	Description
Interface traffic query	Make statistics on the traffic data of each interface within a day,
	and query the statistical results of historical dates
Protocol proportion query	Make statistics on the proportion of protocol traffic within a
	day, display it with a pie chart and query the statistical results of
	historical dates
Session statistics	Make statistics on the number of sessions generated by the
	system within a day and query the statistical results of historical



	dates
Total flow of equipment	Make statistics on the total traffic of all device interfaces within
	a day, and query the statistical results of historical dates

# **3** Protection setting

The protection setting includes three parts, namely Dos/DDos attack protection, abnormal data packet attack protection and scanning protection. It is enabled by default, as shown in Figure 10:

ProtectionSetting								hon
Scanning protection					Protection against abnormal packet	t attacks		
PortScan	threshold 1	100	Packets / se	cond	Ping of Death ATTACK	Maximum package length	3000	byte
					TearDrop ATTACK I LAN	D ATTACK		
DOS/DDoS attack protectio	on							
SYN Flood ATTACK		threshold	1000	Packets / second				
UDP Flood ATTACK		threshold	1000	Packets / second				
ICMP Flood ATTACK		threshold	1000	Packets / second				
Save								

Figure 10

Name	Description			
Dos/DDos attack	Support SYN Flood, UDP Flood and ICMP Flood attack protection,			
protection	as well as setting thresholds			
Protection against	Support Ping of Death attack protection, and setting of packet			
abnormal packet attacks	length threshold; support TearDrop and LAND attack protection			
Scanning protection	Support port scan protection and threshold setting			

## 4 Object Management

The object management involves address objects, application objects, area objects, and time objects, which can be referenced by policies. When an object is referenced by industrial ethernet firewall policies, it cannot be deleted but can be edited.

## 4.1 Address object

The security administrator (secuser) manages the address resources which support the configuration of address objects and address groups. The input formats compatible with the address objects are host addresses, address fields, address ranges or their combinations. The operations such as adding, editing, deleting and bulk deletion can be performed on the page, as shown in Figure 11:

			М <sup>®</sup> т—	
Address				
Address Address group				
Title: Please enter Title	IP Address: Please enter IP Address	Q Search C Reset		
Title		IP Address		MAC Address
			No data	

Figure 11

Click the Add button to add address resources and enter the address name. For the address object, simultaneously enter multiple IP addresses, IP address fields, or their combinations, as shown in Figure 12:

Add Resource /	Address	×
Title	*	
Туре	IPV4 -	
IP Address	*	
MAC address		
(Non comparable option)		
Notice:1. "se 2.	IP addresses support hash, range, and combination, hash ", "separated, r eparated MACReference format: 12:23:AB:55:55:AF	ange" -
	Save	

Figure 12

In addition, the administrator can also manage the address group. In the address group configuration interface, click Add to combine multiple address resources into one address group, as shown in Figure 13:

		COMM	
Add address gr	oup		×
Address group name			*
Describe			
Address group list			
🗌 To c	hoose address list	Select address list	
□ 3 □ 0		No data	
		Sa	ave

Figure 13

## 4.2 Application object

The application object supports the configuration of predefined applications, custom applications and application groups. The security administrator (secuser) can view the system's predefined application resources (which cannot be edited or deleted) in the predefined applications, and the operations such as add, edit and delete can be performed on the custom applications and application groups, as shown in Figure 14.



#### Application

Predefined apps Customize the app The app group		
Title: Please enter Title Q Search C	Reset	
Title	Content	Describe
DNP3	tcpDst Port:20000,Src Port:1-65535	DNP3
НТТР	tcpDst Port:80,Src Port:1-65535	HTTP
FTP	tcpDst Port:21,Src Port:1-65535	FTP
IEC104	tcpDst Port:2404,Src Port:1-65535	ICE104
MMS	tcpDst Port:102,Src Port:1-65535	MMS
MODBUS	tcpDst Port:502,Src Port:1-65535	MODBUS
OPCDA	tcpDst Port:135,Src Port:1-65535	OPCDA
POP3	tcpDst Port:110,Src Port:1-65535	POP3
S7COMM	tcpDst Port:102,Src Port:1-65535	S7COMM
SMTP	tcpDst Port:25,Src Port:1-65535	SMTP
TELNET	tcpDst Port:23,Src Port:1-65535	TELNET
RTSP	tcpDst Port:554,Src Port:1-65535	RTSP
OPCUA	tcpDst Port:4840,Src Port:1-65535	OPCUA
PROFINET	udpDst Port:34962-34964,49152,49153,49155,Src Port:1-65535	PROFINET
CIP	tcp/udpDst Port:44818,Src Port:1-65535	CIP

#### Figure 14

Click the custom application to display the application list according to the custom rules, and click the Add button to add custom application resources, as shown in Figure 15:

Add Resource App			×
	The first step GeneralSetting	2 Step two 3 The third step AdvancedSetting Configure the results	
	* Title	S2104	
	* Protocol	DNP3 -	
	* Port	4	
	* Types of communication	TCP -	
	Describe		
		next step	

#### Figure 15

Name	Description					
Title	Name of custom application					
Protocol	Protocol types, such as MODBUS, DNP3, OPCDA and other protocols					
Port	Custom port with a value ranges from 1 to 65535					



Type of	TCP and UDP
communication	
Description	Description information of custom application with 1 to 32 characters
	in length

With respect to the configuration of MODBUS, complete the previous configuration and click the Next button to enter the advanced settings and configure in-depth analysis control of MODBUS application. The control supports the method, source address, destination address, etc., as shown in Figure 16:

(+) Add				
Method	Source Addr	Destination Addr	Action	Oper.
		No data		

#### Figure 16

For configuring the service of a custom port, add a custom application, select "Custom Service" for the protocol, and click the Next button to configure the source and destination ports, as shown in Figure 17:

* Title	S2104	
* Protocol	Custom services	Ψ.
Describe		
		next step

Figure 17

The user can customize TCP and UDP ports and configure the ICMP protocol. The port number is compatible with hash input, range input or combined format input, as shown in Figure 18:



Types			
Source Port			
* Dst Port			
Notice:	<ol> <li>Ports support hash ports, port ranges, and a combination of both</li> <li>Hash port support format, for example: 135,80,502</li> <li>Range port support format, for example: 520-1314</li> </ol>		
		Last step	Submit

#### Figure 18

In addition, the administrator can also perform the operations such as adding, editing, and deleting application groups. Click the Add button to combine multiple application resources into an application group. Up to 10 applications can be added to an application group, as shown in Figure 19:

Add custom ap	þ				;	×
Application Group Name			*			
Describe						
Select	Application resources		Selected			
group	DNP3	^	No data			
	HTTP					
	FTP					
	IEC104					
	MMS					
	MODBUS					
	OPCDA					
	POP3	~				
				Save .		
				Ouve		



## 4.3 Regional object

The security administrator (secuser) manages area resources and can perform the operations such as editing, modifying, deleting, adding and so on. For ease of operation, the interfaces except the management port are added to the area by default, and the device has one interface per area. As shown in Figure 20:

Regiona	al			home page(Dashboard) / ObjectManagemen
	Title: Please enter Title Q Search C Reset			
-	Batch Delete 🛞 Add			
	Title	Members	Describe	Operation
	LAN1	LAN1		/ 🗉
	LAN2	LAN2		/ 🗉
	LAN3	LAN3		/ 12
	LAN4	LAN4		/ 8
<	1 > To 1 page ok Total 4 piece(s) 50 bar/page V			

#### Figure 20

Note: For the area subject to policy references, the source and destination area objects are not allowed to be configured consistently

## 4.4 Time object

The security administrator (secuser) can manage the time resources and perform the operations such as editing, deleting, adding and so on. By default, the device has two-time objects, including an arbitrary time object "always" and a weekly cycle time object "weekly", which cannot be edited or deleted, as shown in Figure 21:

Title Q Delete -										
	ID	D Title Type		Start Date	End Date	Start Time	End Time	Weekly plan	Date	Operation
	1	always	Every day							/ 😑
	2 weekly weekly		weekly					Monday,Tuesday,Wednesday,Thursday,Friday		/ 😑
Total 2 rows, showing 1 to 2 rows, current page 1, per page 15 rows.										

#### Figure 21

Click the Add button to pop up the add page and add custom time resources. Available time types for input include fixed time and periodic time. The periodic time can be configured to daily, weekly and monthly cycle, as shown in Figure 22:

	AVCOMM <sup>®</sup>		
Add Resource	Time		×
Title		*	
Туре	Fixed time		
Date	Fixed time		
	Every day		
Time	weekly		
	monthly		
	Save		



## **5** Policy Management

## **5.1 Policy configuration**

The security administrator (secuser) can perform policy configuration management, and can perform the operations such as adding, editing, deleting, and moving. The configured policy is only available when the device works in the "protection mode".

In the protection mode, a policy can be selected for the data packet according to the application, source and destination address, source and destination area, and time object. When the policy action is blocking, the data packet will be discarded; when the policy action is allowing, the data packet will be accepted and forwarded.

Click the Add button to pop up the Add Strategy interface, edit the name, application, action and other configuration items of the policy, and click Save after finishing the configuration, as shown in Figure 23:



Add Resource Rule			×
Title		*	^
Action	Disabled	-	
Application	Please select application	*	
Source-Side area	Please select		
Source-side address	Please select address	-	
Destination region	Please select	Ŧ	
Destination end address	Please select address	T	
Time	Please select	~	
Describe			
Guaranteed bandwidth(Mb)			
Limited bandwidth(Mb)			
Bandwidth priority	0	-	
Log	Yes		~

### Figure 23

Name	Description
Name	Policy name, required
Action	Policy actions, including accepting, discarding, and disabling
Application	The application object matched by the policy supports the
	configuration of predefined applications. Required
Source-side area	Source area object for policy matching
Source-side address	The source-side address object matched by the policy can be the
	address object or address group
Destination region	Destination region object for policy matching
Destination end address	The destination end address object matched by the policy can be
	the address object or address group
Time	Time object for policy matching
Description	Description information of policy
Guaranteed bandwidth	Minimum guaranteed bandwidth of the policy



Limited bandwidth	Limited bandwidth of the policy
Bandwidth priority	It is available from 0 to 7
Log recording	Whether the policy records the log is on or off

Policy matching is subject to priority, that is, the one at the top is higher than that at the bottom, that is, the one with the larger priority number is higher. The priority of the policy can be adjusted

through the button, or the upper and lower positions of the rule can be moved by dragging the policy to determine the priority of the rule, as shown in Figure 24:

	Priority	Rule name	Application	Src Zone	Dst Zone	Source IP Address	Dest IP Address	Act Time	Action	Log	Describe	Operation
0	5	S7STOP	S7						Drop	Yes		* <b>/</b> =
0	4	ddd	S7COMM						Accept	Yes		* 🖊 🗉
0	3	modbus	MODBUS						Accept	Yes		* / =

#### Figure 24

The configured policy supports export and import. Click Rule Export to exported policy, as shown in Figure 25:

🐴 Rule Export

#### Figure 25

Click Policy import to pop-up policy import interface (as shown in Figure 26), click

to select the policy to be imported, click Import Rules to import the policy, as shown in Figure 27:

🐴 Policy import

Figure 26





## **5.2 Policy learning**

After logging in the industrial ethernet firewall, the policy administrator (secuser) can choose to enter the learning mode through the "System Management—Work Mode" module, that is, to learn the specific protocol type and detailed protocol data independently and intelligently from the network environment data stream and automatically generate protocol rules at the same time.

Select the start time, learning duration, and protocol type of learning, and click Start to start learning, as shown in Figure 28:

StrategicLearning	1						home pa	ige(Dashboard)
Deep Learing Sta	tus Learning state: Study preparation	stage						
Start Time	2024-04-01 13:51:34	Learning time	30 days	✓ Selective learning	DNP3 × FTP × T	Elnet × SMTP × MMS × ~	Start	Stop
Deep Learing Su	mmary							
Dst IP Address:	Please enter Dst IP Address	Dst Port: Please enter Dst I	Port Src IP Address:	Please enter Src IP Address	Protocol: Please select	Protocol 👻 Q Search	CReset	
雷 Batch Del	ete 📤 Apply Rule							
D	Create Time	Protocol	Dst IP Address	Dst Port	Src IP Address	Message	Action	Орг
				No data				

Figure 28

The learned rules can be queried by selecting the protocol and entering the destination IP, destination port, source IP address, etc., as shown in Figure 29:

- INDUSTRIAL IT -								
Deep Learing Su	mmary							
Dst IP Address:	Please enter Dst IP Address	Dst Port:	Please enter Dst Port	Src IP Address:	Please enter Src IP Address	Protocol:	Please select Protocol	~

Figure 29

# **6** Network Configuration

## **6.1 Interface management**

The interface types supported by interface management include physical interface, bridge interface, VLAN interface and aggregation interface.

## **6.1.1 Network interface**

The system administrator (sysuser) can manage the device interface, view the interface connection status, and add, edit, delete and view the IP address and subnet mask of the device interface, as shown in Figure 30:

Interface	Manager								home page(Das	shboard) / NetworkSetti
Interface	e Bridg	geManager VLANManager	AggrManager							
Interfa	ce Name:	Please enter Interface Name	IP Address:	Please enter IP Address	Status: Please se	ect Status 👻 Q Se	earch C Reset			
窗 B	atch Delete	• Add								177
	ID	Interface Name	NIC Name	IP Address	Netmask	VLAN	Mode	LinkStatus	Describe	Operation
	1	LAN1	eth0					Offline		/ =
	2	LAN2	eth1					Offline		× =
	3	LAN3	eth2					Offline		× =
			1.22					0.000		

#### Figure 30

Click ✓ to enter the edit network interface. According to the actual environment, configure the IP address, mask and VLAN tag of the interface, as shown in Figure 31:

	AVCOMM®	
Edit Interface		×
Interface	LAN4 👻	
IP Address		
Netmask		
MAC Address	00:90:0b:a2:83:40	
VLAN	Please select	
Describe		
	Save	

Figure 31

Click the Add button to add a virtual network interface, namely sub-interface, as shown in Figure 32:

Add Interface		×
Interface	LAN1 -	
IP Address		*
Netmask		*
MAC Address	00:90:0b:a2:85:dc	
VLAN	Please select -	
Describe		
	Save	

Figure 32



Note:

- Only the added virtual network interface can be deleted. The real network interface only can clean up the information related to the IP address and VLAN
- Each interface can only be added to one interface attribute;

Example: If the eth0 interface is added to the VLAN, it cannot be added to the bridge or aggregation

## 6.1.2 VLAN management

The system administrator (sysuser) manages the VLAN and can perform the operations such as adding, editing, and deleting. Create a new VLAN tag and click Add to enter the add interface. The VLAN tag fill-in range is 1 to 4094, as shown in Figure 33:

Add Vlan			×
Label		*	
IP Address			
Netmask			
Describe			
	Save		

#### Figure 33

After configuring the VLAN tag, configure the VLAN interface, click the Edit button on the network interface, and select the VLAN tag for the interface. When configuring a single VLAN tag, the interface mode is access; when configuring two or more VLAN tags, the interface mode is trunk, as shown in Figure 34:

0	ID	Interface Name	NIC Name	IP Address	Netmask	VLAN	Mode	Link state	Describe	Operation
	4	LAN4	eth3			11	access	Offline		/ 😑
0	3	LAN3	eth2	172.16.1.1.	255.255.255.0		-	Offline		/ 😑
	2	LAN2	eth1			11	access	Online		/ 8
	1	LAN1	eth0	1.1.1.1	255.255.255.0		-	Online		/ =
Total 4	Total 4 rows, showing 1 to 4 rows, current page 1, per page 15 rows.									

#### Figure 34

## 6.1.3 Network bridge management

The system administrator (sysuser) manages the network bridge and can perform the operations



such as adding, editing, deleting, etc., click the Add button to enter the interface for adding a network bridge, edit the bridge interface name, and select the network interface and other information. The interface IP address of the bridge is used for bridge interface management, as shown in Figure 35:

Add Bridge		×
Bridge Name		*
Interface	Please select	
IP Address		
Netmask		
Describe		
	Save	

#### Figure 35

Note: An interface can only be added to one bridge interface, and cannot be added to another bridge interface again

## 6.1.4 Aggregation management

The system administrator (sysuser) manages the aggregation and can perform the operations such as adding, editing, and deleting. The aggregation interface supports five modes. The commonly used modes include one primary backup policy mode and four dynamic link aggregation modes. Click Add Aggregate Interface to enter the add interface, as shown in Figure 36:

	AVCOMM <sup>®</sup>	
Add NIC aggregati	on	×
Title	bond0	
Interface	LAN1 × LAN3 ×	*
IP Address	6.1.1.11	
Netmask	255.255.255.0	
Miimon	100 -	
Mode	0 (Round-robin policy)	
Describe		
Status		
	Save	

Figure 36

## 6.2 DHCP server

The system administrator (sysuser) manages the DHCP server. The interfaces that support the enabling of the DHCP service include physical interfaces, VLAN interfaces, and bridge interfaces. The DHCP server can be added, edited and deleted. It also supports configuring static binding of IP addresses and assigning fixed IP addresses to designated clients.

Create a new DHCP server, click the Add button to pop up the interface for adding DHCP domain, select the interface to enable the DHCP service, configure the network address/mask, address range, lease period, etc., and click Save after finishing the configuration, as shown in Figure 37:

	AVCOMM®		
Add DHCP dom	nain		×
Interface	LAN3 (eth2,60.1.1.1)	*	^
network address	60.1.1.0	*	
Network mask	255.255.255.0	*	
Gateway			
domain name			
DNS server			
Address range	60.1.1.100 - 60.1.1.200	*	
Default lease time(minute)	1440	*	
Maximum lease	4320	*	
time(minute)			~

rigui C 57
------------

Name	Description
Interface	Interface with enabled DHCP service
Network address	Specified network used with the mask, required
Network mask	Mask of specified network address, required
Gateway	Set default gateway for the client
Domain name	Set DNS domain name for DHCP client
DNS server	Set the DNS server IP address for the client
Address range	Address range allocated for the DHCP client, valid within the
	network address/mask range, required
Default lease time	Lease time after the client obtains the address, 1 day by default
Maximum lease time	The maximum lease time is the longest time that the IP address can
	be used when the client has exceeded the lease time but has not
	updated the IP address, and it is 3 days by default.

For static binding of DHCP, enter the DHCP static IP configuration interface, and click Add to assign a specified IP address to a host, as shown in Figure 38:

	- IN DUSTRIALIT-		
Add DHCP sta	tic IP		×
Host name	host1	*	^
IP Address	60.1.1.185	*	
MAC address	00:50:56:9D:22:75	•	
Describe			
Notice	e:It is recommended that the statically bound IP address be out address pool	tside the	
	Save		~



## 6.3 Static route

The system administrator (sysuser) manages the static route and can perform the operations such as adding, editing, and deleting. Click Add Route, as shown in Figure 39:

Add Route	>	¢
Interface	Please select 💌	
Dst IP Address	Please enter Dst IP Address	
Netmask	Please enter Netmask	
Next hop	Please enter Next hop	
Weight	0	
Describe	Please enterDescribe	
	Cancel Save	



## 6.4 NAT

The system administrator (sysuser) manages the NAT, which is classified into SNAT and DNAT. With respect to NAT configuration, the user can perform address translation for specific applications. For SNAT, the user can transit the source address and perform the operations such as editing, deleting, adding and searching.

Create a new SNAT, click Add to enter the SNAT add interface, add the source IP address, destination IP address, and converted IP address of the device, etc., and enable the policy, as shown in Figure 40:

Add SNAT		×
Out Interface	Please select	
Application	Please select application	
Source IP Address	Please select address	
Dest IP Address	Please select address 🔹	
Convert IP	*	
Describe		
Status		
	Save	

#### Figure 40

The user can enter the converted IP address, click <sup>Q Search</sup> to perform search for inquiries, which can be fuzzy search, as shown in Figure 41:

SNAT DNAT	r							
Convert IP:	Please enter Convert IP	Q Search C Re	set					
1 Batch Delete	⊕ Add							m
ID	Convert IP	Source IP Address	Dst IP Address	Out Interface	Application	Status	Describe	Operation



The DNAT can convert the destination address and destination port, and support the operations such as adding, editing, deleting, and searching.

Create a new DNAT policy, click Add to enter the NAT add interface, add the source IP address,



destination IP address, and converted IP address of the device, etc., and enable the policy, as shown in Figure 42:

Add destination NA	Л	×
In Interface	Please select -	
Application	Please select application -	
Source IP Address	Please select address -	
Dest IP Address	Please select address -	*
Convert IP		•
Convert Port		
Describe		
Status	Enable	
	Save	



The user can enter the converted IP address, click <sup>Q Search</sup> to perform search for inquiries, which can be fuzzy search, as shown in Figure 43:

SNAT DN	AI								
Convert IP	Please enter Convert IP	Q Search	CReset						
會 Batch Delete	⊙Add								
ID	Convert IP	Convert Port	Source IP Address	Dst IP Address	In Interface	Application	Status	Describe	Operation



## 7 Virtual Private Network

The policy administrator (secuser) configures the VPN and encrypts the transmitted data to ensure the security of data transmission. VPN configuration supports two authentication methods, including pre-shared key and national secret certificate. The national secret certificate authentication requires authorization, and the authorization documents need to be obtained from relevant personnel.



## 7.1 Tunnel management

#### 1) Policy management

The security administrator (secuser) performs the operations on policy management, such as adding, editing, deleting, and viewing.

Create a VPN policy, and first click Add Policy Configuration. The add interface is shown in Figure 44:

Add Authenticatio	n strategy			×
* Group Name				
<ul> <li>Verification</li> <li>Method</li> </ul>	Pre-shared Key			$\nabla$
* Password				
Key Group	Please Select			~
IKE	aes 🔻	- md5	- curve255	519 👻
ESP	aes 🔻	- md5	- curve255	519 👻
			Cancel	Save

#### Figure 44

Name	Description				
Group name	Group name of policy management				
Verification	Pre-shared key and certificate authentication, for which both ends need to				
method	have the same configuration				
Password	Pre-shared key, for which both ends need to have the same configuration				
IKE	IKE SA parameters exchanged and negotiated for the first time, including				
	encryption algorithm, authentication algorithm, and DH algorithm. The				
	successful negotiation requires the same configuration at both ends.				
ESP	It is the security protocol used by the message. The firewall currently only				
	supports the ESP mode, and it also needs to negotiate the encryption				
	algorithm and authentication algorithm. Similarly, the successful				
	negotiation requires the same configuration at both ends.				



#### 2) Strategic management

The security administrator (secuser) performs the operations on strategic management, such as adding, editing, deleting, and viewing.

After configuring the policy management, add the strategic management, reference the configured authentication group, configure the gateways at both ends of the VPN and the traffic to be protected (interest traffic), and check the automatic start, as shown in Figure 45:

Add Tunnel strategy		×
* Source Addr	MGMT (eth4,192.168.1.254)	~
* Source Subnet		
* Certification group	Currently no authentication group is available	- 
* Destination Addr		
* Destination Subnet		
Automatic Start	Enable Express Enable	
	Cancel	Save

#### Figure 45

Name	Description
Source address	Source addresses at both ends of the VPN tunnel
Source subnet	The source subnet of the traffic protected by the VPN tunnel
Certification group	Certification group used by VPN (policy management)
Destination address	Destination address at both ends of the VPN tunnel
Deatination subnet	Deatination subnet of the traffic protected by the VPN tunnel
Automatic start	Check Enable to actively establish a VPN connection
Express	Enable the Express to issue and run the policy for protecting the
	traffic after the VPN negotiation is successful.



#### 3) National secret VPN authorization

When using the national secret certificate authentication, obtain the VPN authorization first, and then configure the national secret certificate to set up the VPN. Configure the policy management first, and then conduct the strategic management. The policy management supports adding, editing and deleting.

When the authentication method is national secret authentication, the user need to obtain authorization first, click VPN>Tunnel Management>National Secret VPN Authorization, and export the national secret VPN information; after obtaining the authorization file, click Import national secret Vpn Authorization to update the authorization status of VPN synchronously, as shown in Figure 46:

Tunnel strategy	Authentication strategy	National Secret Vpn Authorization			
			Guomi VPN information -	Unauthorized	
		Importing National Secret Vpn Authorization	Guone et remontation.	ondumonizou	
Click upload,	or drag the file here	Exporting National Secret Von Information			

Figure 46

## 7.2 Certificate management

After obtaining the relevant certificate, click Add CA Certificate, as shown in Figure 47:

Add CA Certific	at	×	
Cert Name		*	
CA Cert	<b></b>	*	
	Save		



To add an IPSEC certificate, click Add. The signature certificate, encryption certificate and other related information are required, as shown in Figure 48:

		-INDUSTRIAL IT-	
Add Ipsec Certi	ficat		×
Cert Name			*
Sign Name		-	*
Encrypt Cert		-	•
Cert Type	Soft certificate	~	*
Sign Private Key		-	•
Encrypt Private Key		<b>-</b>	•
		Save	



## 8 System Management

## 8.1 Basic setting

## 8.1.1 Management setting

The system administrator (sysuser) can perform management settings in the basic settings, mainly including management port configuration, SNMP setting, SSH setting, and access security setting, as shown in Figure 49:



GeneralSetting				home page(Dashb
Manage settings	Warning settings Log management			
Management por	rt configuration	SNMP settings		
Access IP	192.168.1.254	SNMP Community		
Access Port	443	SNMP IPv4 access address	Please select 👻	
Netmask	255.255.255.0		Enable SNMP management	
Gateway				
	Open multi port management			
SSH Setting		Access Security		
SSH Port	22022	Manager IP Restrictions		
1	Non-management control	Manager MAC Limit		
	Enable SSH management			



Name	Description
Management port	Device management port configuration supports multi-port
configuration	management and the port is the gateway by default
SNMP settings	SNMP service enabling, disabling and configuration
SSH setting	SSH service enabling and disabling. The SSH service of the
	management port and the service port can be enabled.
Access security	Support the configuration of manager access security binding

## 8.1.2 Warning setting

The system administrator (sysuser) can perform warning setting in the basic settings, namely warning criterion for industrial ethernet firewall CPU usage, memory usage, hard disk usage and network usage. When the device condition reaches the warning value, send a warning email through "Email Settings" to the administrator's mailbox for notification, as shown in Figure 50:



lanage settings	Warning settings Log management		
arning Threshold	Setting	Email settings	
CPU Usage	80	Mail Server	
Memory Usage	80	Send email	
Disk Usage	80	Mail Password	
Network Usage	60	Mail Port	465
			Use SSL 🗌 Enable
			Send a test message
ave			



## 8.1.3 Log management

The system administrator (sysuser) can perform log management in the basic settings, mainly including log storage time management and Syslog setting. After the Syslog server is enabled, the log information will be synchronized and backed up to the Syslog server, as shown in Figure 51:

Manage settings Warning settings Log management		
Log storage time	Syslog Setting	
Delete 30 Log Information days ago	Syslog Server	
	* Syslog Port 514	
	Enable	
Save		



## 8.2 Assets management

### 8.2.1 Asset security

Asset security is divided into three parts, asset summary, asset list, and asset introduction, as shown in Figure 52:

									М <sup>®</sup> т —			
AssetsManager											home page(Dashboard)	SysManager
AssetsSafety	Explore											
Asset Summary							Asset Introductio	n				
Asse	t Count:	0	Binding device:		0		MAC repetition	• Cover	Jump			
Unbour	nd device:	0	Last Update Time:		2024-04-01 08:41:57							
Unk	nown:	0					Click upload	or drag the file here	2			
Asset List												
Asset Name:	Please enter As	set Name	IP Address:	Please enter IP Address	MAC Address:	Please ente	r MAC Address	All Status:	Please select Status	Q Search C	Reset	
1 Batch Delet	e 🕢 Add	🛓 Export	🛓 Untie 🛕 Bindi	ng								99
Asset ID	Asset Name		Category	IP Address	MAC Address	Cre	ate Time	Owner	Describe	Status	Operatio	n
						No d	iata					



The policy administrator (secuser) manages the asset list, and can perform the operations such as editing, deleting, adding, unbinding and binding. Figure 53 shows the unbinding and binding:

0	Asset ID	Asset Name	Category	IP Address	MAC Address	Create Time	Owner	Describe	Status	Operation	
			Network Switch	192.168.6.66	98:fA:9B:2C:E1:DA	2021-09-17 14:16:43			Already bound	/ 🗇	

#### Figure 53

There are many options for adding asset lists. The user can also set categories manually, as shown in Figure 54:

	-INDUSTRIALIT	
AddAssetsMan	lager	×
Category	<b>^</b>	
Owner	Network Router	
	Network Switch	
Asset Name	Server	
	Operator Station	
IP Address	Engineer Station	
MAC	SCADA	*
address	PLC	
Asset ID	Industry Controller	
Describe		
Describe		
Status	Binding	
	Save	



Asset import only supports text import in csv format, as shown in Figure 55:



Figure 55

Name	Description
Cover	If an asset in the asset list duplicates the imported asset, remove the asset from
	the asset list and add the imported asset.



Jump	If an asset in the asset list duplicates the imported asset, do not handle the asset
	from the asset list or add the imported asset.

## 8.2.2 Detection

The detection can be performed through the device interface, and the detected IP and MAC can be bound.

**1. Detection:** Each detection lasts for 2 minutes. Select the interface and click Detection to enter the detection interface, as shown in Figure 56:

AssetsSafety Explore				
Detection				
Interface				
MGMT (eth4,192.168.67.170) -				
Detection				
Detection Desuit				
Desclori reaux				
Interface	IP Address	MAC Address	Status	
	No matching records found			
Binding				

#### Figure 56

Note: If all results are detected within two minutes, no further detection will be performed; if no results are detected, it will wait for 2 minutes to time out and exit.

**2. Binding:** Bind the detected IP address with the MAC address. If the user does not want to bind or handle the detection result, select the result to be bound and click Bind, as shown in Figure 57:

erfa	lace				
IGM	IT (eth4,192.168.67.170)	v			
De	election				
tion	Result				
tion	Result				
tion	Result	IP Address	MAC Address	Status	
tion	Result Interface MGMT(eth4)	IP Address 192 168 87 151	MAC Address 70.89.79.60.00.98	Status Not bound	
	Result Interface MGMT(eth4) MGMT(eth4)	IP Address 192.166.67.151 192.168.67.160	MAC Address 70:59:79:50:00:98 00:90:08:A2:82:42	Status Not bound	

Figure 57

View the binding result of asset security, as shown in Figure 58:



Figure 58



## 8.3 Diagnostic tool

The diagnosis tool involves two parts: diagnosis and packet capture:

1. Diagnostic tool: it is used to detect network communication, and compatible with PING, TELNET and TRACEROUTE, as shown in Figure 59:

DxdiagTools				home page(
Diagnosis Capture				
Diagnostic commands IP Address IP Address	Ping     Traceroute     Teinet	Result		Î
Start				

Figure 59

**2. Packet capture:** Packet capture conditions can be filtered by device, network interface, protocol, source IP address, destination IP address, and destination port, and the number of captured packets can be configured.

The device name and status can be used to filter the capture records. The above is shown in Figure 60:

OxdiagTools							ho
Diagnosis Capture							
Interface All	v	Protocol	Please select	v	Packages	10	
Source IP Address		Dst IP Address			Dst Port		
Start							
acket Capture Record							
Status: Please select Status	▼ Q Search C Reset						
	Olard Time	Test Te		Data Olas		Chalue	
FIC	Start Inne	Elid III		Data 3125		Sidus	
			No dat	а			

Figure 60

## 8.4 Control of connections

The policy administrator (secuser) can configure the maximum number of connections for an IP address and control the connection rate. It supports the operations such as add, edit and delete.

Create a maximum connection control, and click the Add button to enter the add interface. The setting range of maximum connections is 100 to 65535, and the setting range of connections per second is 10 to 10000. The above is shown in Figure 61:



Add Access Num		×
* IP Address		
* Max Access		
* Per Access		
Describe		
Status Enable	>	
	Cancel Save	



## **8.5** Account setting

## 8.5.1 Account setting

The industrial ethernet firewall system is a multi-user system. The administrators (sysuser, secuser, loguser) with user management authority can perform the maintenance for the users, as shown in Figure 62:

Moodingening	4				nome page(beshovard) / Oyamanage
AccountSetting	g Login	Security			
User Name	e Please	e enterUser Name Email: Please enterEmail	Q Search C Reset		
1 Batch E	Delete				
	ID L	User Name	Email	Last Seen	Operation
	1 5	sysuser			e / A
	2 5	secuser			e / 🚇
	3 1	loguser			



Administrator users (such as the sysuser system administrator) can delete sub-users, but cannot



delete themselves and other administrator users (secuser security administrator and loguser audit administrator), as shown in Figure 63:

C	1	ID	User Name	Email	Last Seen	Operation
C	1	1	sysuser		2021-09-17 16:22:10	9 🖌 🖹
C		6	sysuseroox			8 / 2 8
C	1	7	888	aaa@163.com		🖗 🖌 🗎 💼
C		8	bb			2 🔎 🖻 🗎

#### Figure 63

Click Details to view the user's detailed information, add user permissions and take sysuser as an example, as shown in Figure 64:

The user details		×
Role:	Security Administrator	
UsersManager:	secuser	
Create Time:	2024-04-01 05:51:11	
Last Seen:		
Email:		
User	Dashboard	
Privileges	HistoricalTraffic	
	ProtectionSetting	
	<ul> <li>ObjectManagement</li> </ul>	
	Address	



Click Add to add sub-users and add permissions to the sub-users. The permissions of the subuser are less than or equal to those of the parent user, as shown in Figure 65:

Add User			×
Role	System Administrator	★ User Privileges	Dashboard HistoricalTraffic
Login Name		*	NetworkSetting     VirtualPrivateNetwork     SysManager
Password		*	Centralized
Confirm Password		*	
Receipt email			
		Save	



A certificate file is required for user login. Click  $\overset{(1)}{\square}$  to generate a certificate file and import the certificate file on the login interface to log in.

## 8.5.2 Login security

The policy administrator (secuser) can set the password format and password validity period through the security settings, as shown in Figure 66:

AccountSetting					home page(Dashboard
AccountSetting LoginSecurity					
* Password Minimum Length	8	* Password Maximum Length	20	* Password Expired After Days	1095
* Login Time Out After Seconds	1200	* Max Retry Login Times	3		
Password setting rules: The password	l must contain upper case lette	s, lower case letters, numbers and special symbols			
Save					

#### Figure 66

Name	Description
Password setting	Password limitation can be set, including password length
Password expired	The user password must be modified at regular intervals, that is, it has
after days	a password validity period
Login time out	If the user does not operate the interface for a certain period of time
seconds	after logging into the WEB management interface, it needs to log in
	again, and the period is the login timeout.
Max retry login	It is the number of retries for incorrectly entering the login user name
times	or password. If the number is exceeded, it will be prohibited to log into
	the system (locked for 10 minutes)



#### Note: The password complexity cannot be changed.

## 8.5.3 Separation of powers

The industrial ethernet firewall adopts the user management method with separate permissions to set the administrators in 3 roles: sysuser/secuser/loguser, respectively corresponding to the system administrator, the security administrator, and the audit administrator.

The system administrator (sysuser) is mainly responsible for the maintenance of the overall industrial ethernet firewall operation.

The security administrator (secuser) is mainly responsible for the rule setting and policy management of the industrial ethernet firewall.

The audit administrator (loguser) is mainly responsible for auditing the behavior of the industrial ethernet firewall and analyzing the system status.

Different administrators can only add or edit their own role user information but cannot modify other types of role user information.

The administrator can log into the system to create a sub-administrator under its permission and assign industrial ethernet firewall devices to the sub-administrator. The sub-administrator can only view or modify the devices assigned to it.

## 8.5.4 Permission assignment

The functional modules that the system administrator (sysuser) and its sub-administrators can operate include:

- Dashboard (Monitoring center)
- ✤ Historical traffic
- ✤ Network setting
- Virtual private network
- System management
- Centralized

The functional modules that the security administrator (secuser) and its sub-administrators can operate include:

- Dashboard (Monitoring center)
- ✤ Historical traffic
- Object management
- Policy management
- Protection setting
- System management
- Centralized
- Log audit

The functional modules that the audit administrator (loguser) and its sub-administrators can operate include:

Dashboard (Monitoring center)



- Historical traffic
- System management
- Centralized
- Log audit

Note: The sub-administrator can only modify its own information in the user function module.

## 8.5.5 Application of configuration

After adding or modifying a rule, the rule will not be automatically applied to the corresponding

industrial ethernet firewall device, but the user needs to manually click "Waiting for Confirmation" in the upper right corner of the page to view all pending events, as shown in Figure 67:

Events info									×
Event type:	Please select	w.	Event status:	WAIT	v	Q Search	C Reset	A Issue	
User N	lame		Event		Create	Time		Finish Time	Status

#### Figure 67

Check the events that need to be submitted, click the "Issue" button, and wait for the display of "Configuration Successful", which means that the configuration is successfully applied, as shown in Figure 68:

Events info									×
Event type:	Please select	٣	Event status:	WAIT	7	Q Search	C Reset	A Issue	
User N	lame		Event		Create	Time		Finish Time	Status



## 8.6 System setting

## 8.6.1 Regular choice

The system administrator (sysuser) can edit and modify the authorization information, device information, and working mode, and support system upgrades and full device backup operation, as shown in Figure 69:

		OMM <sup>®</sup> trial it —
SystemSetting		
conventional arrangement system configuration		
DeviceMessage		Complete machine backup
Devices name S2104	Devices Mode Test Mode 🛩	Click upload, or drag the file here Whole machine export
Authorization Information		
Click upload, or drag the file here	H Get Config	Authorized time: 85 days
System Upgrade		
Click upload, or drag the file here Upload File	S Start upgrade	The current software version: 2.3.11.4 Upgrade record:

#### Figure 69

Name	Description
Authorization	The authorization configuration can be obtained, and the authorization
information	can be imported. In addition, the user can view the remaining days of
	authorization
Device Message	Set a device name
Device mode	Four available working modes, including protection mode, warning
	mode, learning mode and bypass learning mode
System upgrade	The user can view the current system version and upgrade records, and
	perform version upgrades
Complete machine	The whole device can export and import the backup file
backup	

## 8.6.2 System configuration

The system administrator (sysuser) can configure the system for Bypass, time server, restart, shutdown, factory reset and setup wizard, as shown in Figure 70:



SystemSetting		home pag
conventional arrangement system configuration		
Bypass	System reset	
Manually switch the network card bypass state	Restart Shuldown Reset System Setting Wizard	
time setting		
2024-04-01 09:10:02 Get device time Set time		
Time Server Port 123	Time Sync Cycle 1 Min + Enable S	ave



Name	Description
Bypass	The user can manually switch the Bypass state through settings and choose
	to turn on or off Bypass. Manual switching will not be allowed when the
	bypass is turned off
Time setting	The user can set the time, get the device time, and configure the time server,
	service port, time synchronization period and whether to enable
Restart	Click it to restart the industrial ethernet firewall
Shutdown	Click it to shut down the industrial ethernet firewall
Reset system	Click it to reset the device. Except for the management port address, the rest
	of the configuration is reset
Setting wizard	Click it to enter the initialization wizard

## 9 Centralized Management

## 9.1 Registration list

The centralized management function of industrial ethernet firewall means that firewall can be used as a centralized management terminal and the devices deployed in other areas can be registered on the centralized management platform so as to realize the control of the subordinate devices by the centralized management platform.

The functions of the centralized management platform are as follows:

1. View the basic information of the client device

After successful registration, the centralized management platform can view the basic information of the bound client device, including the device IP address, device name, serial number, authorization status, working mode, bypass status, etc.

2. Perform basic operations on the client device

For successfully registered devices, the centralized management terminal can manually switch the bypass mode and perform the operations such as authorization and de-registration of the devices.



In the device asset list of the centralized management terminal, the user can also log in to access the client device without password. In the alarm list of the show center, the user can directly jump to the data statistics page of the client device through the counted number of unprocessed alarms.

3. Monitor the operation and event information of client devices

For successfully registered devices, the centralized management terminal can view top5 device traffic conditions, alarm events and top5 attack information in real time in the show center, as well as the online and offline status of the devices. When the devices are offline, there will be an offline reminder and an offline prompt sound.

#### • Manually add registration for centralized management terminal device

In the registration list interface, the user can manually add registered assets, as shown in Figure 71:

	Industrial Ethernet Fi	irewal											
ņ	Dashboard		Waiting list										
$\Lambda$	HistoricalTraffic		Device name:	Please enter De	evice name Manag	ement port IP:	Please		t p Online Status:	Please select Online Statos	Q Search	CReset	
ø	ProtectionSetting		1 Batch Dele	ete 🕒 Add	P Batch registration			Add registered as	ssets			×	
۲	ObjectManagement	~	Device	name	Management po	ort IP	Devic	* Device name	Please enter Device	name			On
E	StrategicManager	~						* Management	Please enter Manage	ment port IP			
÷	NetworkSetting	~						port IP					
•	VirtualPrivateNetwork	~						* Device SN	Please enter Device	SN			
24	SysManager	~						Device model	Please enter Device	nodel			
	Centralized	^						The version number	Please enter The ver	sion number			
	ShowCenter							Auth Status					
	Waiting list												
	Registration success list							Take Care:	The equipment inform	nation filled in should be consister	nt with the equipment i	nformat	
Д	LogAudit	~											

Figure 71

Name	Description
Device name	The name of the device requesting registration
Management port IP	IP address of management port for the device requesting registration
Device SN	The factory serial number of the device, which is the unique
	identification of the device
Device model	Model of the device for delivery
The version number	Version information of the device requesting registration
Auth status	Authorization status of the device requesting registration, through
	which the remaining license days of the device can be obtained
Online status	Online status of the device requesting registration, that is, whether
	the client device is still sending a registration request. If the client
	device no longer sends a request to this management platform, the
	status will be offline
Operation	The user can accept registration of the device requesting registration,
	and the device will be added to the successful registration list if the
	registration is accepted.



**Note:** For manually adding device asset information, the device name, management port IP and device serial number are required, and the rest are optional. The device serial number is used as the unique identifier of the device. When a device with a matching serial number requests registration, its information will be refreshed synchronously.

In the pending registration list interface, the user can query by device name, management port IP and online status, as shown in Figure 72:

Device name:	Please enter Device name	Management port IP:	Please enter Management p	Online Status:	Please select Online States

#### Figure 72

After registration, the user can see the successfully registered devices in the successful registration list, perform <sup>2</sup>Cunbinding operations and <sup>2</sup>Coview basic settings, as shown in Figure 73:

	ratic	n	
꺖	£		
	«	1	30



### 9.2 Show center

After the device is added to the successful registration list, the show center will display the statistical information of the device. In the device asset, the icon of this device will be displayed. In the alarm information statistics table, the alarm status of this device will be displayed. For the current risk assessment and total device traffic, the statistics on top 5 alarms of all devices and top 5 total device traffic will be taken into account, as shown in Figure 74:

Risk Assessment	Top 5 of total equipment flow
Top 5 current attack sources IP Address times No data	● 1 day ○ 3 days
Top 5 current attack targets IP Address Equipment name No data	
	Top 5 current attack sources IP Address times No data Top 5 current attack targets IP Address Equipment name No data

Figure 74



Name	Description
Alarm	Collect the warning information of all successfully registered devices,
information	including the device name, IP address, and the alarm number. Click the
	untreated number of the corresponding device to successfully jump to the
	alarm statistics page of this device
Risk assessment	For the risk assessment, the proportion of industrial protection warnings,
	network traffic warnings, system protection warnings, and other messages
	for all devices is collected. The TOP5 value of the source and purpose of
	the current attack is the summary of TOP5 attacks on all successfully
	registered devices
TOP 5 of total	Top 5 total traffic of all successfully registered devices are collected, and
equipment flow	the traffic information can be displayed for the last day, the last three days,
	and the last 7 days.
Equipment assets	After the device is successfully registered, the device information will be
	added to this statistics box. The green device icon indicates online and the
	yellow one indicates offline. When clicking on this device icon using a
	mouse, the user will successfully log in to the web interface of the device
	and operate the client device.
Offline reminder	After the successfully registered device goes offline, it will pop up an
	offline reminder and sound an alarm. The user can manually turn off the
	sound and minimize this pop-up window. The reminder will be closed
	when the device goes online.

## 10 Log Audit

## **10.1 Firewall log**

The firewall log shows the category of protection log information recorded by the device (warning, error and prompt) and the distribution of protection log on the day (including industrial control events, network events, normal release protocols, and other events). For viewing the firewall log information, the user can filter the information to be viewed according to the source and destination IP, port and protocol type, time, log level, etc.. And the user can mark the selected item or the current page to read state. The protection log can be deleted or cleared, as shown in Figure 75:



0 Industrial con error/protocol	trol vulnerability/illegal instruct beyond strategy	tion/syntax	DDOS/Network scanning			0 Norm	al release agre	ement	No.	O Block illegal ad	ccess to host (ille	sgal IP, MAC bound)
Date:	2024-04-01	Time:	Please select Time	log level:	Please select log level	×	Src IP Address:	Please enter Src IP Address	Src Port:	Please enter	Src Port	
Dst IP Address:	Please enter Dst IP Address	Dst Port:	Please enter Dst Port	Protocol:	Please select Protoco	×	Rule name:	Please enter Rule name	Message:	Please enter	Message	
Q, Search	C'Reset											
會 Batch D	elete 🛛 🗙 Clear 🖉 Export	✓ Batch Make	e as read									97
	Create Time Level	Protocol	Action Rule name	Sourc	e IP Address	Source F	Port	Dst IP Address	Dst Port		Message	Log Status

Figure 75

## 10.2 System log

The system log involves the query of system log information classification (warning, error and prompt) of all industrial ethernet firewall devices. The system log status can be inquired through the query time, log level, categorization information and message, and the system log can be deleted or cleared, as shown in Figure 76:

lo	g level: Please select i	iog level 👻	Categorization Please select Information:	It Categorization         Message:         Please enter Message         Query time:         2024-03-02 00:00:0 - 2024-04-01 09:24:54         Q Bearch         C Reset					
18	Batch Delete X Clear	A Export			8				
	Create Time	Level	Categorization information	Message	Result				
	2024-04-01 06:57:31	INFO	Device Message	[OK]start sysdata	SUCCES				
	2024-04-01 06:49:13	INFO	Device Message	[OK]start sysdata	SUCCES				
	2024-04-01 06:23:46	INFO	Device Message	[OK]atari sysdata	SUCCES				
	2024-04-01 05:52:31	INFO	End Job	async job end for dev 1	SUCCES				
	2024-04-01 05:52:30	INFO	Start Job	async job start for dev 1	SUCCES				
	2024-04-01 05:52:30	INFO	Make Config file	save config file sys.cfg	SUCCES				
	2024-04-01 05:51:40	INFO	End Job	async job end for dev 1	SUCCES				
	2024-04-01 05:51:39	INFO	Start Job	async job start for dev 1	SUCCES				
	2024-04-01 05:51:39	INFO	Make Config file	save config file sys.clg	SUCCES				
	2024-04-01 05:51:39	INFO	Make Config file	save config file rules.cfg					
	2024-04-01 05:51:39	INFO	Make Config file	save config file net.cfg	SUCCES				
	2024-04-01 05:49:57	INFO	Device Message	[OK]start sysdata	SUCCES				



## 10.3 Admin log

The admin log involves the query of management log information classification (warning, error and prompt) of all industrial ethernet firewall devices. The admin log information can be filtered and viewed by user, IP address, log level, query time, message, etc., and the admin log can be deleted or cleared, as shown in Figure 77:



	User: Please select I	Jser 🔻	log level:	Please select log level 🔹	IP Address: Please enter IP Address Message: Please enter Message Query time: 2024-03	+02 00:00:00 - 2024-04-01 09:25:14				
Q, Se	arch C'Reset									
Ŧ	Batch Delete × Clear	🛓 Export								
	Create Time	IP Address	Level	User	Aessage	Result				
	2024-04-01 08:06:14	192.168.1.222	INFO	superman	Export Rules	SUCCESS				
	2024-04-01 07:18:25	192.168.1.222	INFO	superman	iser superman login from 192.168.1.222	SUCCESS				
	2024-04-01 07:11:41	192.168.1.222	INFO	superman	Jser superman logout from 192.168.1.222	SUCCESS				
	2024-04-01 07:06:50	192.168.1.222	INFO	superman	iser superman login from 192.168.1.222	SUCCESS				
	2024-04-01 06:54:11	192.168.1.222	INFO	superman	user superman login from 192.168.1.222					
	2024-04-01 06:50:31	192.168.1.222	INFO	superman	iser superman login from 192.168.1.222	SUCCESS				
	2024-04-01 06:39:24	192.168.1.222	INFO	superman	iser superman login from 192.168.1.222	SUCCESS				
	2024-04-01 05:56:04	192.168.1.222	INFO	superman	iser superman login from 192.168.1.222	SUCCESS				
	2024-04-01 05:51:11	192.168.1.222	INFO	superman	user superman login from 192.168.1.222	SUCCESS				

Figure 77

# 11 Appendix A

FAQ for AVCOMM industrial ethernet firewall:

## 11.1 What should I do if the web management page cannot be opened?

**Answer:** Check whether the industrial ethernet firewall device communicates with the client computer via the MAN port.

The default management address of the device is 192.168.4.2, please confirm whether the IP address for logging into the PC is in the same network segment

Ping the client computer to test whether the IP address of the WEB management interface can be pinged.

If you still cannot open the WEB management interface, please contact us info@avcomm.us.

## 11.2 What should I do if a white screen is displayed when opening the

### WEB management interface?

**Answer:** Change the browser used (Chrome or Firefox is preferred). If it is still a white screen, please contact us info@avcomm.us.

## 11.3 What should I do if the business process is interrupted after the

### learned rules are applied?

**Answer:** Check the details of the applied rules to ensure that the communication commands are included. You can also manually add rules to ensure normal business communication.

If there is still an exception, please contact us info@avcomm.us.