



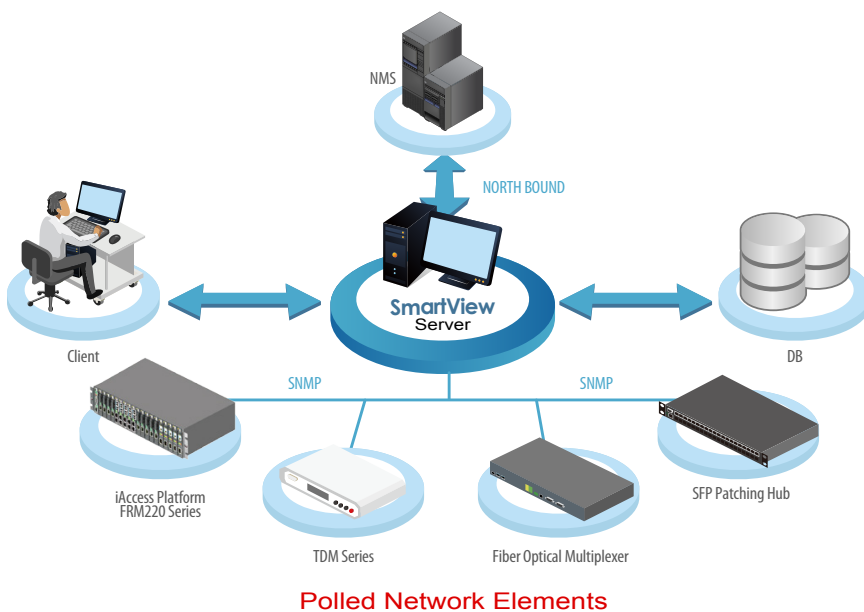
SmartView™ EMS Element Management System

- Centralized Device Management Platform
- Real-time visual representations and processing of alarms
- Easy and User-Friendly Operation Interface
- Long term event storage (1 year)

Main Feature

- Main Functions (**FCAPS**): **F**ault, **C**onfiguration, **A**ccounting, **P**erformance and **S**ecurity Management
- Remote access control for efficient configuration
- Traffic / Performance monitoring and management
- Alarm Trap and event log management
- Auto Discovery and Device Viewer
- Allow up to 25 administrators to login

Network Scheme Diagram



- User-Friendly Operation Interface
- Robust Client / Server architecture
- Network Monitoring and Management
- Database for persistent event storage
- Security Access Management

Agents

All of CTC Union's SNMP enabled products, such as FRM220 platform, FMUX series of fiber multiplexers and TDM are manageable by CTC Union SmartView™ EMS management Platform.

SmartView™ Server

The server handles connection with the network devices using SNMP protocol, and is responsible for communication of requests from management clients. SmartView™ Server collects the information data from specific SNMP agents, stores the information into a persistent database and updates that information to the management clients.

Microsoft® SQL Server for Persistent Storage

SQL Server is the place where the SmartView™ collects data. Alarms, traps and user actions are stored for long term retrieval. SmartView™ requires Microsoft® SQL Server and is compatible with SQL Server 2005, SQL 2005 Express, SQL 2008 Server, SQL 2012 Express, SQL 2012 Server and SQL 2012 Express. (The EMS installer will install the free version Microsoft® SQL 2008 Express by default.)

Workstation-Clients

Management clients are provided with the JAVA applet GUI to monitor and control the agents at far end. They also receive the Alarm and Traps from the corresponding SNMP Agents. Multiple workstations are allowed, with a maximum of 25 concurrent logged in users.

Features at a Glance

- Fault Management

Trap Collection

All traps will be stored in SQL database. When an SNMP agent experiences an abnormal condition it will send an SNMP trap message to SmartView™ which then receives the message, and records it in the database. Depending on preset conditions, SmartView™ may sound an audible alarm, send an email or SMS alert message or just simply flash the trap message on the administrative console screen.

Element Management Console v2.57 (User admin)

System Tool Help

Network Alarm Trap Inventory

Search

Type: Current Time: [] Device: All Ack: All

Historical To: [] Message: [] Clear

Trap List (Last 100)

No.	Ack	Time	Device	Address	Message
1	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot06. Local: Fiber Link Down.
2	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot07. Local: Fiber Link Down.
3	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot10. Local: Fiber1 Link Down.
4	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot10. Local: Fiber2 Link Down.
5	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot11. Local: Fiber Link Down.
6	<input checked="" type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Chassis1. Slot11. Local: UTP Link Down.
7	<input checked="" type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot12. Local: Fiber Link Down.
8	<input checked="" type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot12. Local: UTP Link Down.
9	<input checked="" type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot13. Local: Fiber1 Link Down.
10	<input checked="" type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot13. Local: Fiber2 Link Down.
11	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot13. Local: Fiber2 Link Down.
12	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot15. Local: UTP Link Down.
13	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot15. Local: E1 Signal Loss.
14	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot16. Local: UTP Link Down.
15	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot16. Local: E1 Signal Loss.
16	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot17. Local: Fiber Link Down.
17	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot17. Local: UTP Link Down.
18	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot18. Local: Fiber Link Down.
19	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot18. Local: UTP Link Down.
20	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot19. Local: Fiber Link Down.
21	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot19. Local: UTP Link Down.
22	<input type="checkbox"/>	2013-10-31 16:43:26	FRM220-44	10.1.1.44	Chassis1. Slot20. Local: Fiber Link Down.
23	<input type="checkbox"/>	2013-10-31 16:43:27	FRM220-44	10.1.1.44	Chassis1. Slot20. Local: UTP Link Down.
24	<input type="checkbox"/>	2013-10-31 16:43:27	FRM220-44	10.1.1.44	Chassis1. Slot02. Local: Card FRM220A-1000EAS/X Found.
25	<input type="checkbox"/>	2013-10-31 16:43:27	FRM220-44	10.1.1.44	Chassis1. Slot03. Local: Card FRM220A-1000EAS/X Found.
26	<input type="checkbox"/>	2013-10-31 16:43:27	FRM220-44	10.1.1.44	Chassis1. Slot04. Local: Card FRM220A-1000EAS/X Found.
27	<input type="checkbox"/>	2013-10-31 16:43:39	FRM220-44	10.1.1.44	Chassis1. Slot05. Local: Card FRM220A-1000EAS/X Found.
28	<input type="checkbox"/>	2013-10-31 16:44:10	FRM220-44	10.1.1.44	Chassis1. Slot02. Local: Fiber1 Link Down.
29	<input type="checkbox"/>	2013-10-31 16:44:10	FRM220-44	10.1.1.44	Chassis1. Slot02. Local: Fiber2 Link Down.

All Events: 75 Non-Acked Events: 65

Export Clear Ack

Trap Messages

Active Alarm

SmartView™ continuously polls all network devices under its management and will visually display all alarm conditions found. Alarms will be categorized as Major, Minor or Warning, depending on severity. Although alarms may be acknowledged, they remain actively displayed on the alarm page until there is no longer an alarm condition.

Element Management Console v2.57 (User admin)

System Tool Help

Network Alarm Trap Inventory

Search

Type: Current Time: [] Device: All Severity: All

Historical To: [] Location: All Racks All Slots All Sites Ack: All Clear

Alarm List

No.	Ack	Time	Device	Address	Location	Message	Severity
1	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	Fiber2 port has no link.	Warning
2	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	E1 channel CH1 inactive.	Warning
3	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	E1 channel CH2 inactive.	Warning
4	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	E1 channel CH3 inactive.	Warning
5	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	E1 channel CH4 inactive.	Warning
6	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	RS232 port inactive.	Warning
7	<input checked="" type="checkbox"/>	2013-10-31 16:48:28	FMUX04E-43	10.1.1.43	Local	LAN2 port inactive.	Warning
8	<input type="checkbox"/>	2013-10-31 16:49:30	FMUX04E-43	10.1.1.43	Local	LAN3 port inactive.	Warning
9	<input type="checkbox"/>	2013-10-31 17:06:01	FMUX04E-43	10.1.1.43	Remote	ES error (Error seconds).	Minor
10	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	Fiber2 port has no link.	Warning
11	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	E1 channel CH1 inactive.	Warning
12	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	E1 channel CH2 inactive.	Warning
13	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	E1 channel CH3 inactive.	Warning
14	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	E1 channel CH4 inactive.	Warning
15	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	RS232 port inactive.	Warning
16	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	LAN1 port inactive.	Warning
17	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	LAN2 port inactive.	Warning
18	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	LAN3 port inactive.	Warning
19	<input type="checkbox"/>	2013-10-31 17:04:36	FMUX04E-43	10.1.1.43	Remote	Phone port inactive.	Warning
20	<input type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Rack:1 Slot:1 Local	Power1 is not working or not installed.	Minor
21	<input type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Rack:1 Slot:1 Local	Fan1 is not working or not installed.	Minor
22	<input type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Rack:1 Slot:1 Local	Alarm1 setting is in alarm.	Minor
23	<input type="checkbox"/>	2013-10-31 16:43:25	FRM220-44	10.1.1.44	Rack:1 Slot:1 Local	Alarm2 setting is in alarm.	Minor
24	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:2 Local	Fiber1 port has no link.	Major
25	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:2 Local	Fiber2 port has no link.	Major
26	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:2 Local	UTP3 port has no link.	Major
27	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:2 Local	UTP4 port has no link.	Major
28	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:3 Local	Fiber1 port has no link.	Major
29	<input type="checkbox"/>	2013-10-31 16:43:58	FRM220-44	10.1.1.44	Rack:1 Slot:3 Local	Fiber2 port has no link.	Major

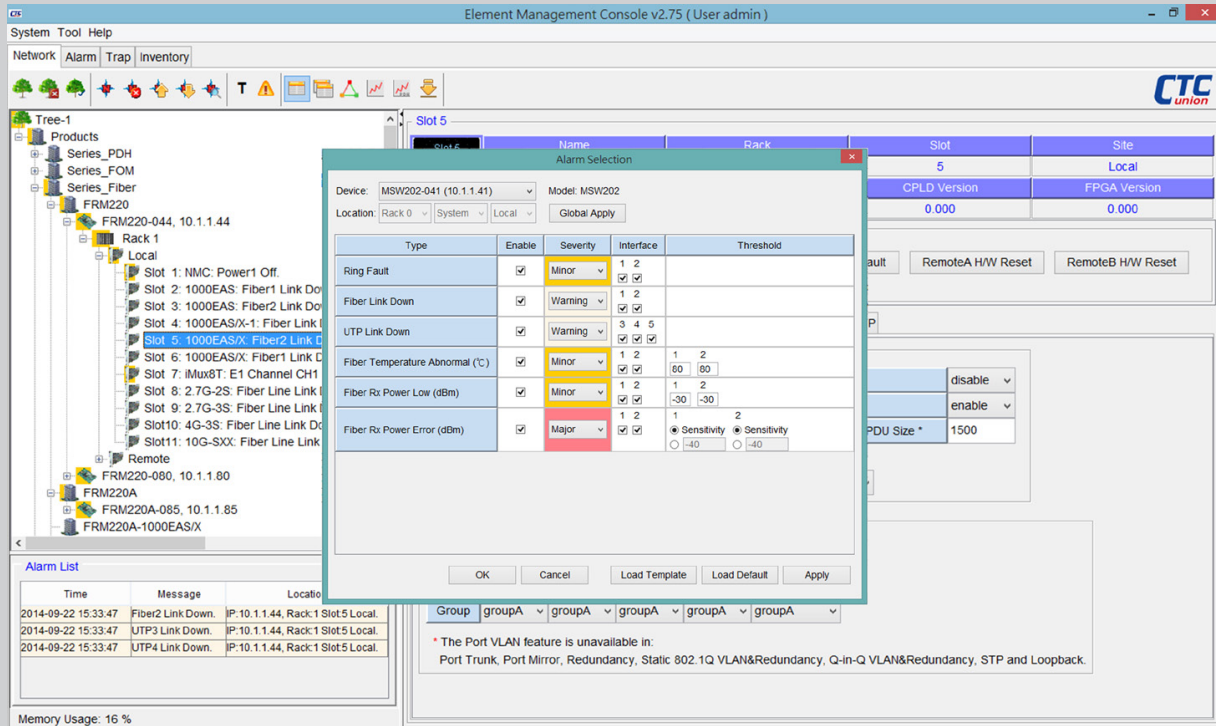
All Events: 143 Non-Acked Events: 136

Export Ack

Active Warnings

Alarm Selection

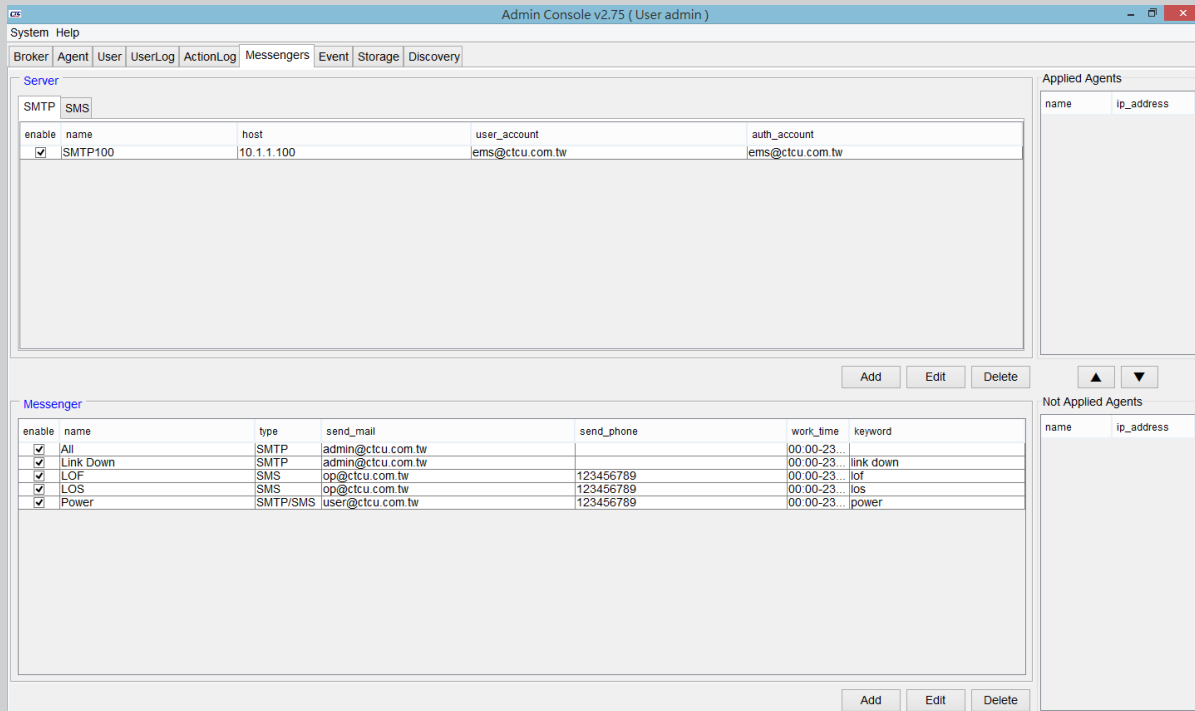
Alarm events of network element are configurable. All alarm events are warned by default, but them can be disabled to ignore warning messages.



Alarm Selection

Alarms sent by E-mail & SMS

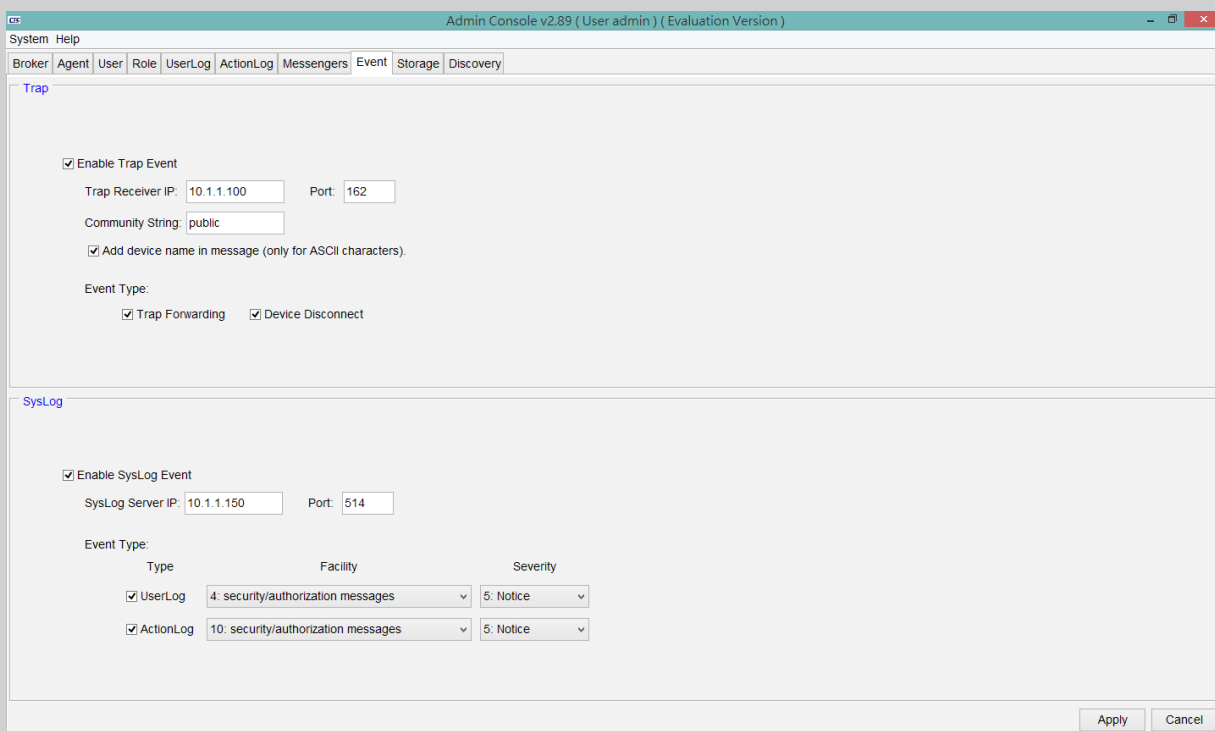
The SmartView™ is capable of sending emails and or SMS text messages to selected administrators when critical alarms occur. Prompt notification of system problems aid in getting problems in the network devices fixed in the shortest time possible.



Alarms Sent by Email & SMS

Trap Forwarding and Syslog messages

The SmartView is capable of forwarding received traps to upper network management and sending event messages to a syslog server.

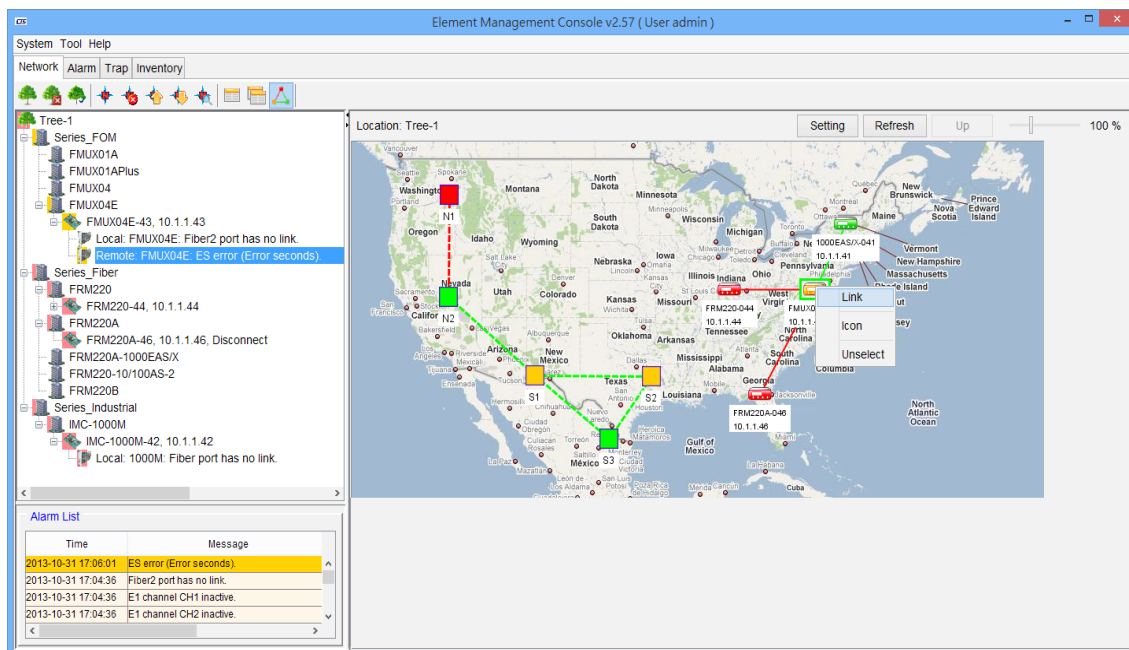


Trap Forwarding Syslog Message

- Configuration Management

Network Topology

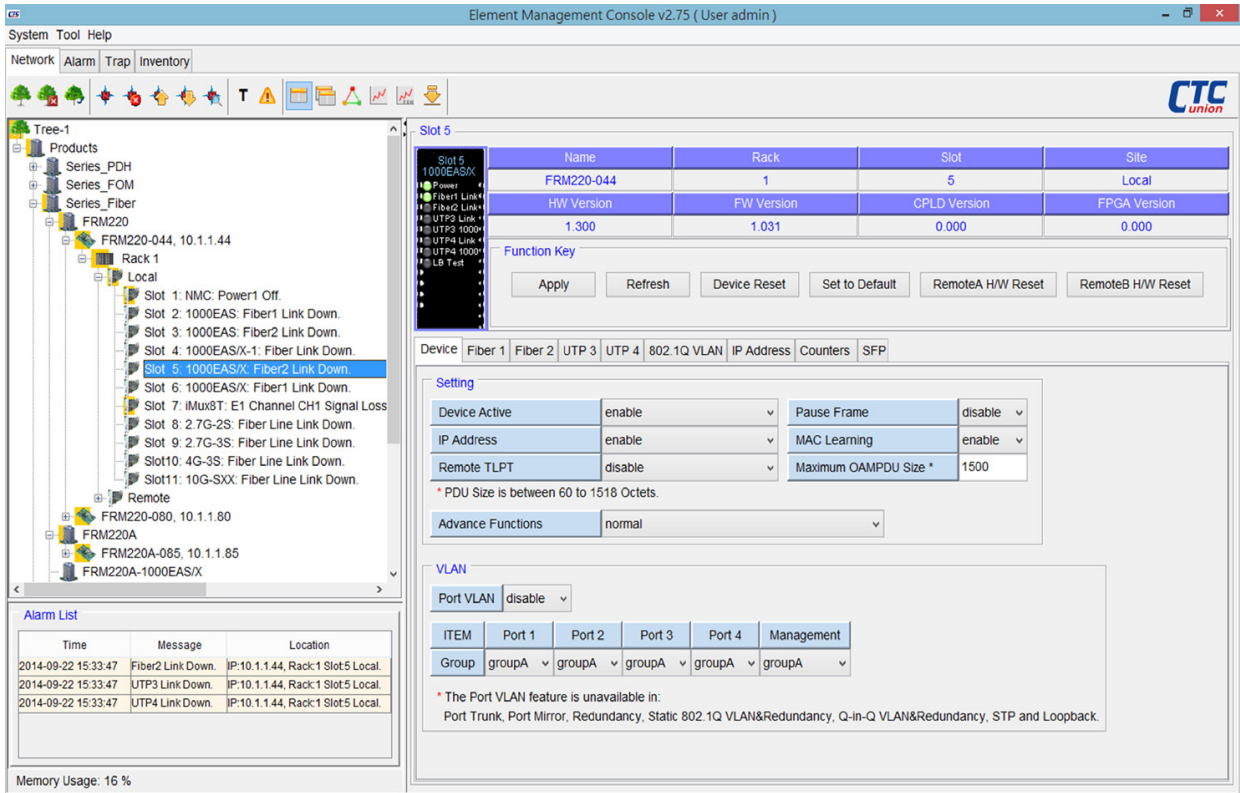
User can load maps to SQL server, load maps from SQL server or delete attached maps. Download procedure is very simple. Map area may be used to layout any objects from Root and Node panel. Using drag-and-drop, put any object to map area. Any label or network element location name may be added to object. Objects in red color indicate some alarm condition is present in the device. Right clicking an object brings a popup window to select Telnet or http management of the device directly.



Network Topology

Network Element Configuration

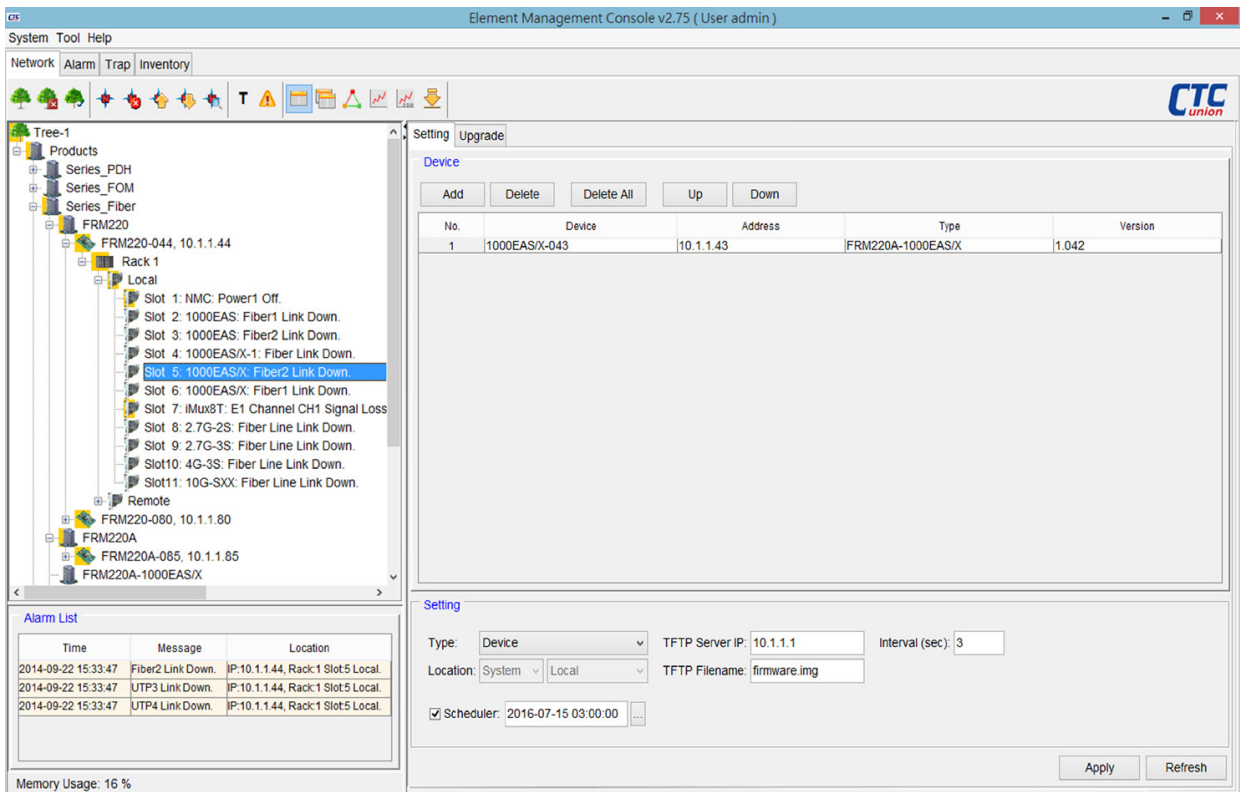
SmartView™ is able to provide a single point of configuration for the device elements. Most settings only require mouse clicks and by using a tab format, most scrolling is eliminated. Current settings and status are displayed along with hardware and firmware versions for each element.



Network Element Configuration

Network Element Firmware Upgrade

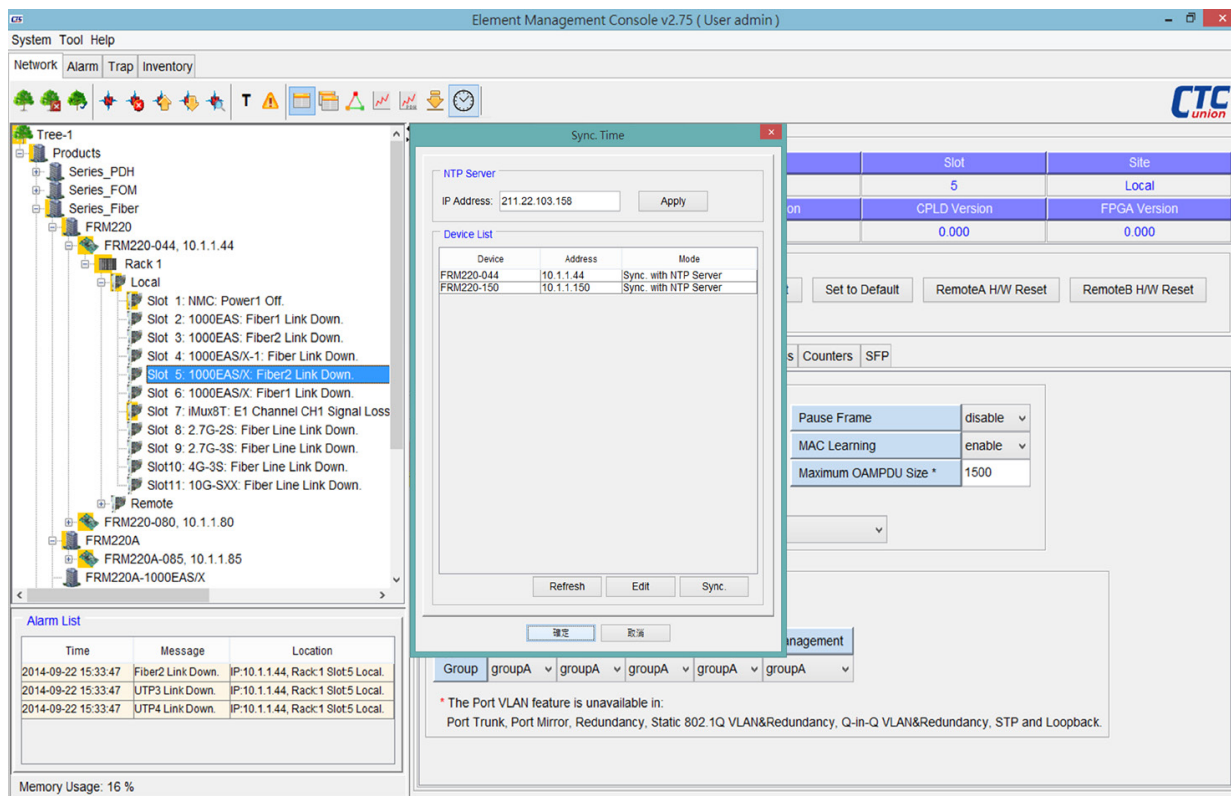
SmartView™ is able to download firmware to device elements and perform configuration backup/restore.



Network Element Firmware Upgrade

Network Element Time Synchronization

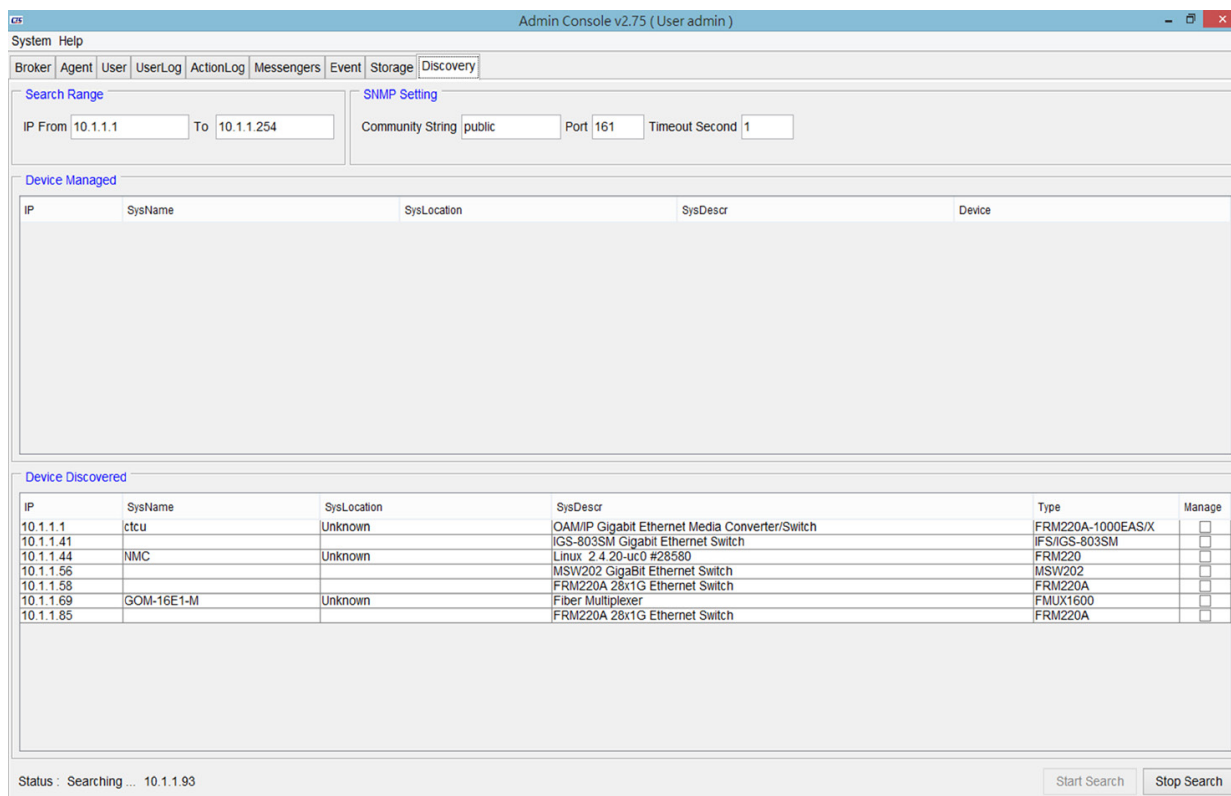
SmartView™ is able to trigger a command to network elements to perform time synchronization with Smartview or a NTP server.



Network Element Time Synchronization

Network Element Discovery

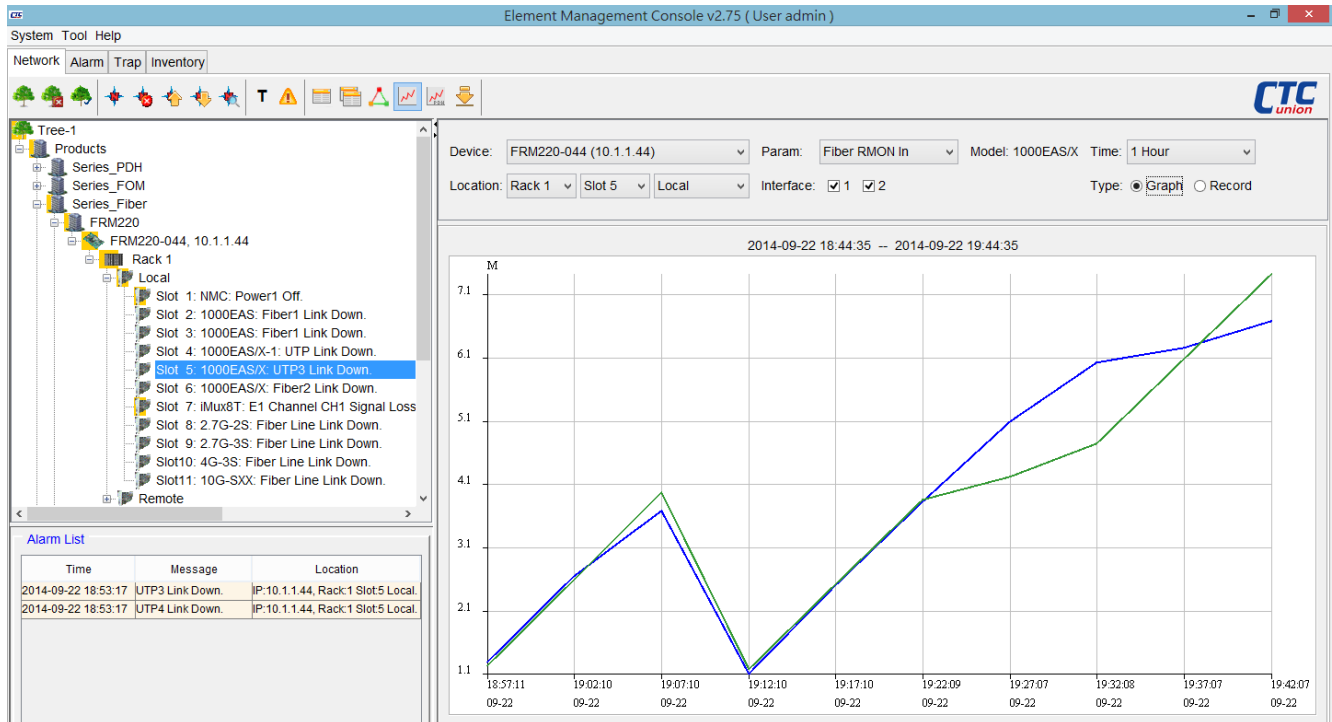
SmartView™ has a tool for automatically discovering SNMP agents on the network. Simply enter an IP address range and the discovery program will ping every IP address looking for SNMP agents. Once discovered, the agents can be selected and brought into the broker for polling.



Network Element Discovery

- Performance Management

SmartView™ is able to monitor device performance parameters through polling of specific OIDs. Graphs of performance information (for example PDH PM data such as ES, UAS, etc. as well as hardware parameters such as fan speed, temperature, optical Tx/Rx power or RMON counters) can be generated on an XY axis showing different trend data.



Performance Graphics

Device: FRM220-044 (10.1.1.44) Param: Fiber RMON In Model: 1000EAS/X Time: 1 Hour
 Location: Rack 1 Slot 5 Local Interface: 1 2 Type: Record

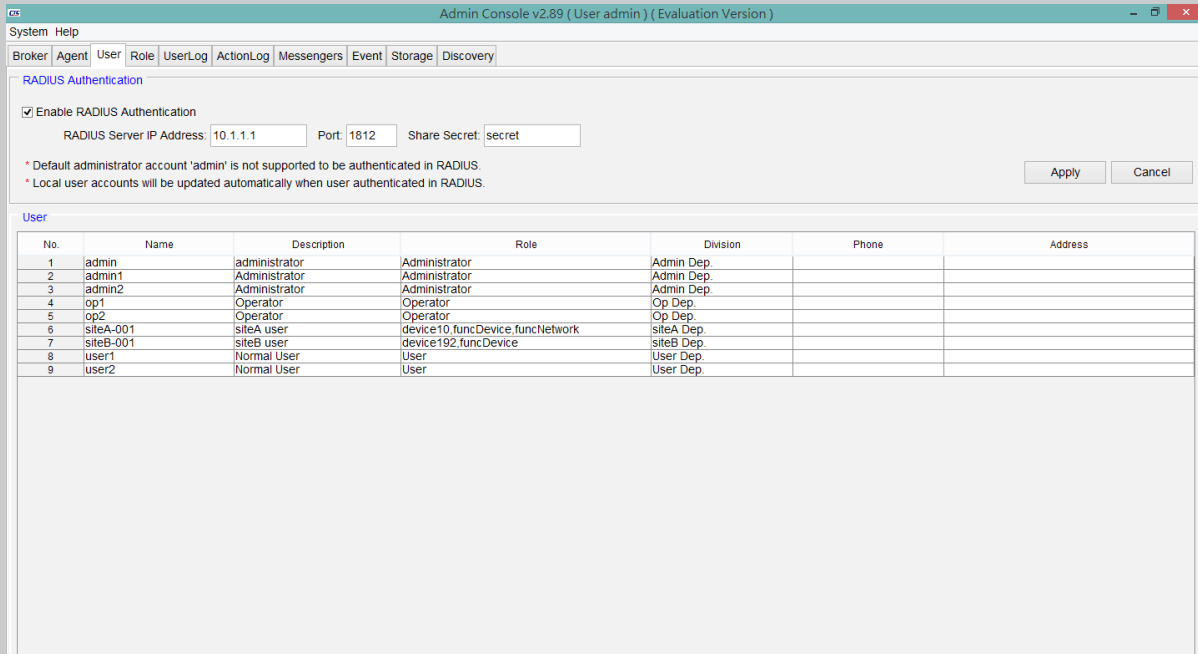
No.	Device	Address	Type	Location	Time	Param	Interface	Value
1	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 18:57:11	Fiber RMON In	1	1331040
2	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 18:57:11	Fiber RMON In	2	1270944
3	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:02:10	Fiber RMON In	1	2677120
4	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:02:10	Fiber RMON In	2	2621536
5	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:07:10	Fiber RMON In	1	3711872
6	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:07:10	Fiber RMON In	2	4005216
7	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:12:10	Fiber RMON In	1	1132512
8	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:12:10	Fiber RMON In	2	1210720
9	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:17:10	Fiber RMON In	1	2538752
10	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:17:10	Fiber RMON In	2	2547776
11	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:22:09	Fiber RMON In	1	3869792
12	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:22:09	Fiber RMON In	2	3887840
13	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:27:07	Fiber RMON In	1	5125632
14	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:27:07	Fiber RMON In	2	4259328
15	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:32:08	Fiber RMON In	1	6058112
16	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:32:08	Fiber RMON In	2	4776704
17	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:37:07	Fiber RMON In	1	6298752
18	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:37:07	Fiber RMON In	2	6116768
19	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:42:07	Fiber RMON In	1	6715360
20	FRM220-044	10.1.1.44	FRM220	Rack:01 Slot:05 Local	2014-09-22 19:42:07	Fiber RMON In	2	7452320

Performance Records

• Security Management

User Privilege

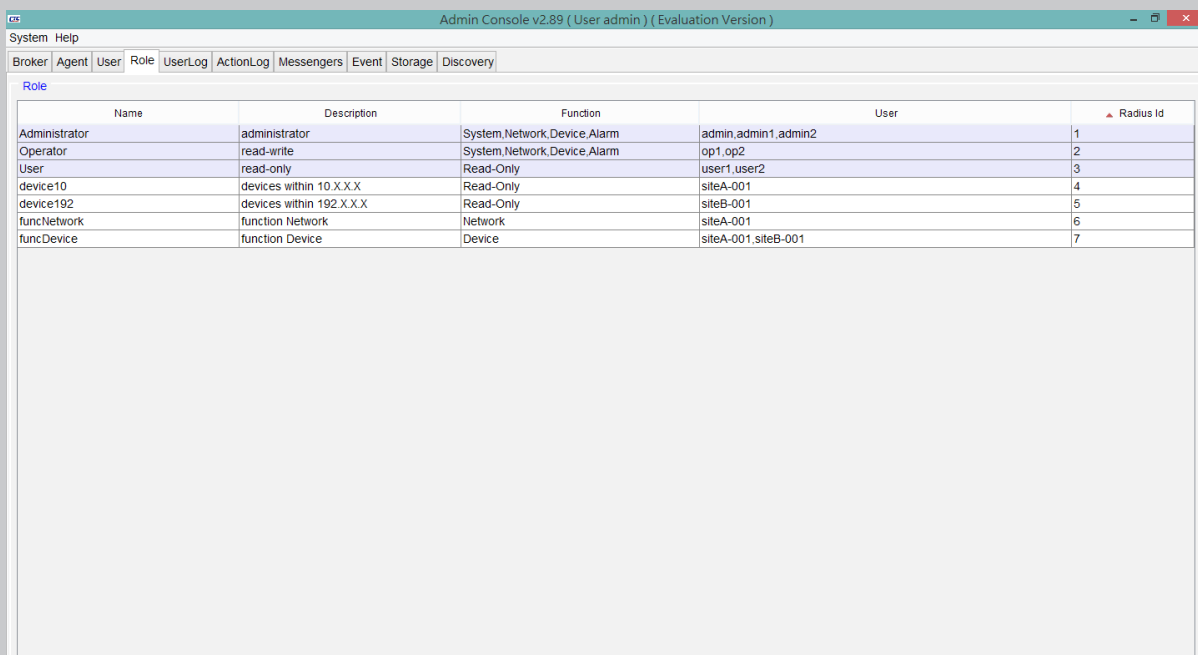
- The administrator can add necessary user logins with specific privileges, from Administrator to Operator and lastly to normal user.
- Radius Authentication. Supports authentication login provided by credentials stored on RADIUS server.



User Privilege

User Role

A user role is a group and defines privileges for users to perform management tasks. The access to network elements is also restricted by user role.



User Role

User Activity

Provides viewing and clearing of the user login and configuration action logs.

User client login & logouts are recorded, including the client's source IP address. All activities performed on any Device Element are logged with time-stamping, the user making changes and the changes made.

No.	Time	Username	Agent Name	Action
1	2013-10-31 17:13:45	admin	FRM220-44	[f1000EASXUp4LnkAlarmLocal.1.2] disable --> enable
2	2013-10-31 17:13:45	admin	FRM220-44	[f1000EASXUp4ActiveLocal.1.2] disable --> enable
3	2013-10-31 17:13:32	admin	FRM220-44	[f1000EASXUp4LnkAlarmLocal.1.2] enable --> disable
4	2013-10-31 17:13:32	admin	FRM220-44	[f1000EASXUp4NegoLocal.1.2] auto --> manual
5	2013-10-31 17:13:32	admin	FRM220-44	[f1000EASXUp4ActiveLocal.1.2] enable --> disable
6	2013-10-31 17:13:08	admin	FMUX04E-43	[e1T1Ch3lineCodeRemote.0] ami --> hdb3-b8zs
7	2013-10-31 17:13:08	admin	FMUX04E-43	[e1T1Ch3lineCodeRemote.0] ami --> hdb3-b8zs
8	2013-10-31 17:13:08	admin	FMUX04E-43	[e1T1Ch2lineCodeRemote.0] ami --> hdb3-b8zs
9	2013-10-31 17:13:08	admin	FMUX04E-43	[e1T1Ch1lineCodeRemote.0] ami --> hdb3-b8zs
10	2013-10-31 17:13:00	admin	FMUX04E-43	[e1T1Ch4lineCodeRemote.0] hdb3-b8zs --> ami
11	2013-10-31 17:13:00	admin	FMUX04E-43	[e1T1Ch3lineCodeRemote.0] hdb3-b8zs --> ami
12	2013-10-31 17:13:00	admin	FMUX04E-43	[e1T1Ch2lineCodeRemote.0] hdb3-b8zs --> ami
13	2013-10-31 17:13:00	admin	FMUX04E-43	[e1T1Ch1lineCodeRemote.0] hdb3-b8zs --> ami
14	2013-10-31 17:05:47	admin	FMUX04E-43	[clearErrorCounterRemote.0] off --> clear
15	2013-10-31 17:05:00	admin	FMUX04E-43	[clearErrorCounterRemote.0] off --> clear
16	2013-10-31 17:04:44	admin	FMUX04E-43	[clearErrorCounterLocal.0] off --> clear
17	2013-10-31 16:50:45	admin	FMUX04E-43	[clearErrorCounterRemote.0] off --> clear
18	2013-10-31 16:49:48	admin	FMUX04E-43	[clearErrorCounterRemote.0] off --> clear
19	2013-10-31 16:49:30	admin	FMUX04E-43	[utp3serviceLocal.0] on --> off
20	2013-10-31 16:49:10	admin	FMUX04E-43	[e1T1Ch4serviceRemote.0] on --> off
21	2013-10-31 16:49:09	admin	FMUX04E-43	[e1T1Ch3serviceRemote.0] on --> off
22	2013-10-31 16:49:09	admin	FMUX04E-43	[e1T1Ch2serviceRemote.0] on --> off
23	2013-10-31 16:49:09	admin	FMUX04E-43	[e1T1Ch1serviceRemote.0] on --> off
24	2013-10-31 16:48:57	admin	FMUX04E-43	[utp3serviceRemote.0] on --> off
25	2013-10-31 16:48:57	admin	FMUX04E-43	[utp2serviceRemote.0] on --> off
26	2013-10-31 16:48:57	admin	FMUX04E-43	[utp1serviceRemote.0] on --> off
27	2013-10-31 16:48:46	admin	FMUX04E-43	[rs232ServiceRemote.0] on --> off
28	2013-10-31 16:48:39	admin	FMUX04E-43	[phoneServiceRemote.0] on --> off
29	2013-10-31 16:46:20	admin	FMUX04E-43	[utp2serviceLocal.0] on --> off

User Activity

Requirements

SmartView™	Hardware (minimum)	Software	Operating System
SmartView™ Server	Intel Core2 or higher processor, 2GB RAM, 40GB HD	JAVA JRE, SmartView™ Kit, MS-SQL Server	Windows 2008/2012 Server, Windows Vista, Win 7/8
SmartView™ Clients	Intel Core2 or higher processor, 2GB RAM, 20GB HD	JAVA JRE, SmartView™ Kit.	Windows Vista, Win 7/8
All-In-One	Intel Core2 or higher processor, 4GB RAM, 80GB HD	JAVA JRE, MS-SQL Server, SmartView™ Kit, SmartView™ Server/Client	Windows 2008/2012 Server, Windows Vista, Win 7/8

Ordering Information

SmartView™ Platform Server with Device Agents

Model Name	Description
SV1-AGT-50	SmartView™ Platform with 50 device agents
SV1-AGT-100	SmartView™ Platform with 100 device agents
SV1-AGT-200	SmartView™ Platform with 200 device agents
SV1-AGT-500	SmartView™ Platform with 500 device agents