SCS-VR™

VIRTUAL RECEIVER

Table of Contents

1. Welcome to SCS-VR

SCS-VR provides central stations with a software-only network service that operates as a virtual receiver for IP and cellular alarm communications. SCS-VR is reliable and effectively manages all network and cellular alarm signals, supervision, and substitution messages without the maintenance, space, and power requirements of a comparable rack-mounted hardware receiver.

SCS-VR can be used as a primary receiver or as a backup for existing hardware receivers. Flexible product licensing options accommodate applications ranging from small network monitoring organizations to central stations monitoring thousands of accounts. Advanced diagnostics with full data logging ensures reliable service and fast troubleshooting.

SCS-VR supports Microsoft® SQL Server® 2012 or higher and can run on more than one server from the same database. It also supports 128-bit and 256-bit AES encryption, providing military grade security.

2. System Requirements

You will need to meet the following minimum requirements to successfully use the SCS-VR:

SCS-VR Application Server (Each Primary and Backup Server)

- Intel® Core™ iSeries Processor (Dual Core)
- 12 GB RAM
- Gigabit Ethernet adapter
- 20 GB HDD or SSD
- Microsoft Windows Server 2012
- Java 7 or 8

Note: If using encryption, Java Cryptography Extension (JCE) is required.

SQL Server (Each Primary and Backup Database)

- Intel Core iSeries Processor (Quad Core)
- 16 GB RAM
- Gigabit Ethernet adapter
- Microsoft Windows Server 2012
- 160 GB HDD: RAID 10 or RAID 5 for Redundancy (Alternative: 160 GB SSD with RAID 1 or RAID 5 for Redundancy)

3. SCS-VR Database Configurator Utility

Use the **Database Configurator Utility** for initial database configuration or to upgrade an existing SCS-VR database.

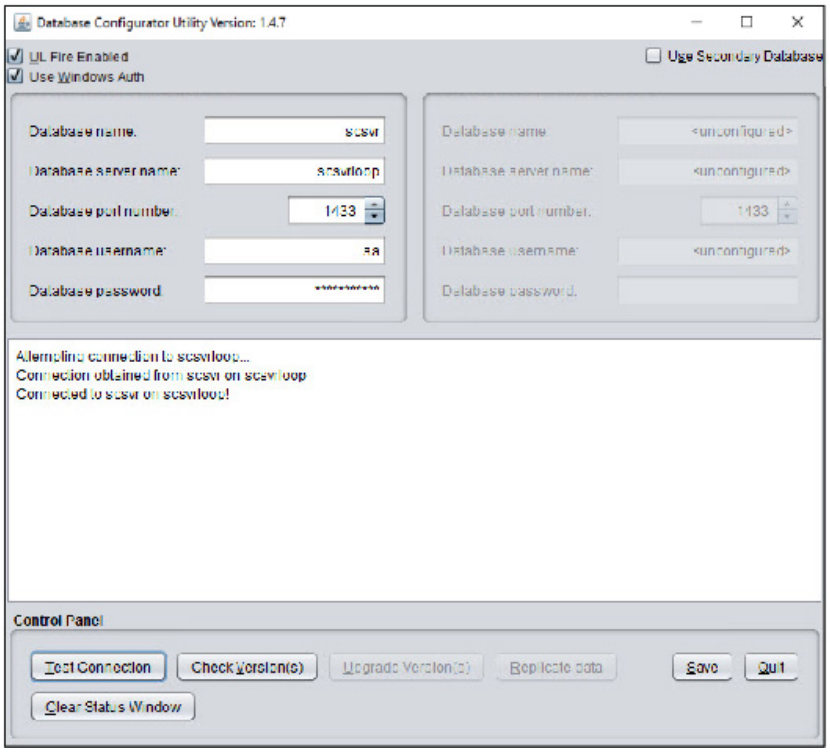
3.1 Configure the Primary and Secondary Databases

You need the following information to set up your primary and secondary databases:

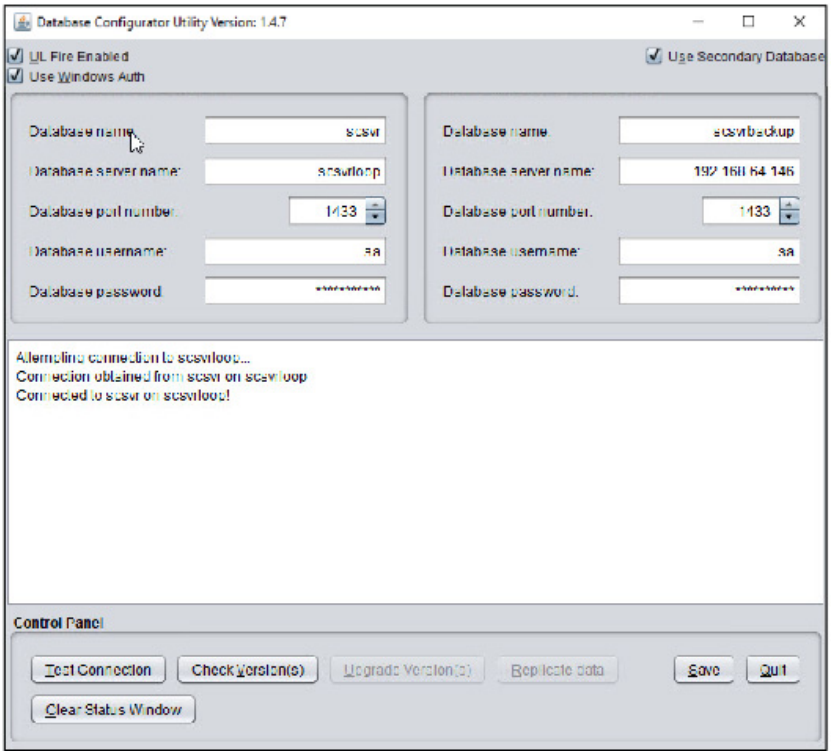
- **Database name**
- **Database server name**
- **Database port number**
- **Database username**
- **Database password**

Enabling **Use Secondary Database** allows you to configure a secondary database. SCS-VR will automatically begin using the secondary database if the connection to the primary database is lost.

Note: If **UL Fire Enabled** is selected, a secondary database should be configured.



Primary Database



Secondary Database

3.2 Configure Windows Authentication Login

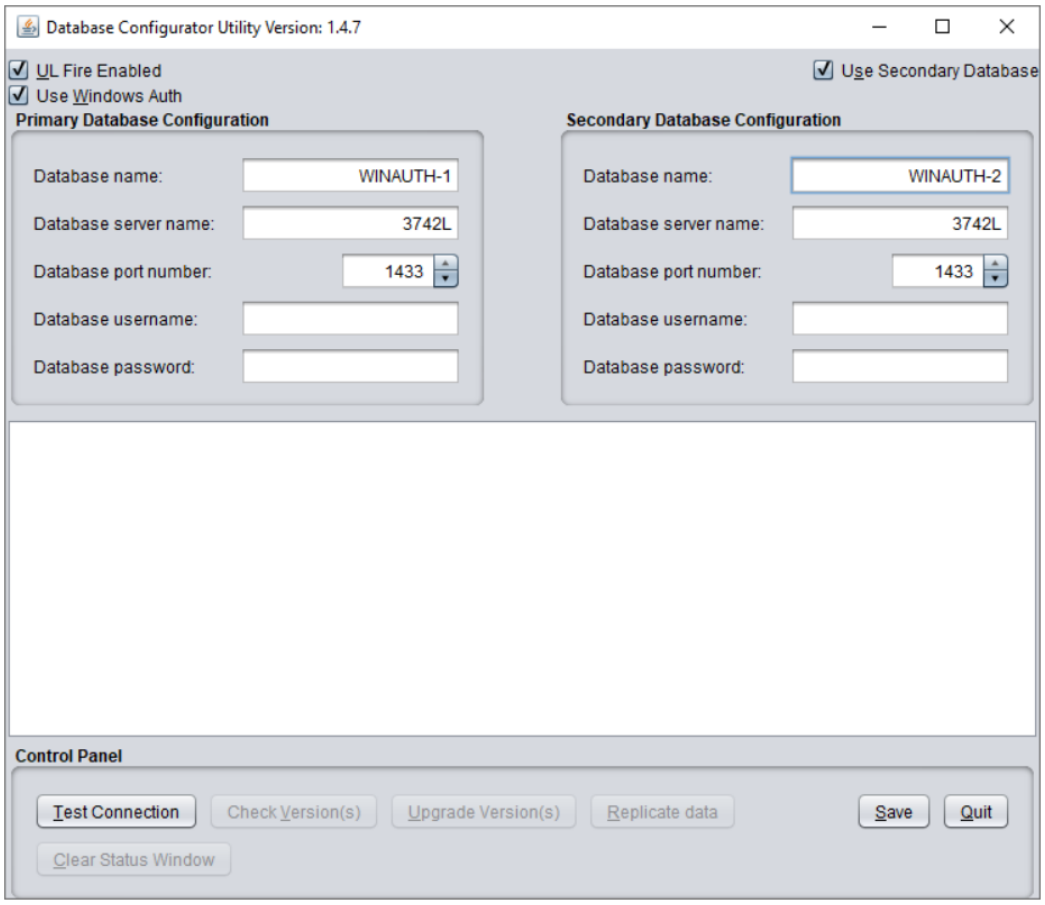
Follow the instructions below for setting up your Windows Authentication Login.

SCS-VR Setup Console and the SCS-VR Service run as different users by default. To use Windows Authentication, the database administrator will need to set up logins with appropriate authority on the VR databases.

- If the service and database are on the same machine, the service login will look something like: **NT AUTHORITY\SYSTEM**.
- If the service and databade are not on the same machine, the service login will look something like: **<domainname>\<machinename>$**.

Launch the Service

1. Open the **Database Configurator**.
2. Turn on **Use Windows Auth**.
3. Select **Test Connection**.



Setup Console

In the Setup Console, leave the **Username** and **Password** field blank.

User Login Management

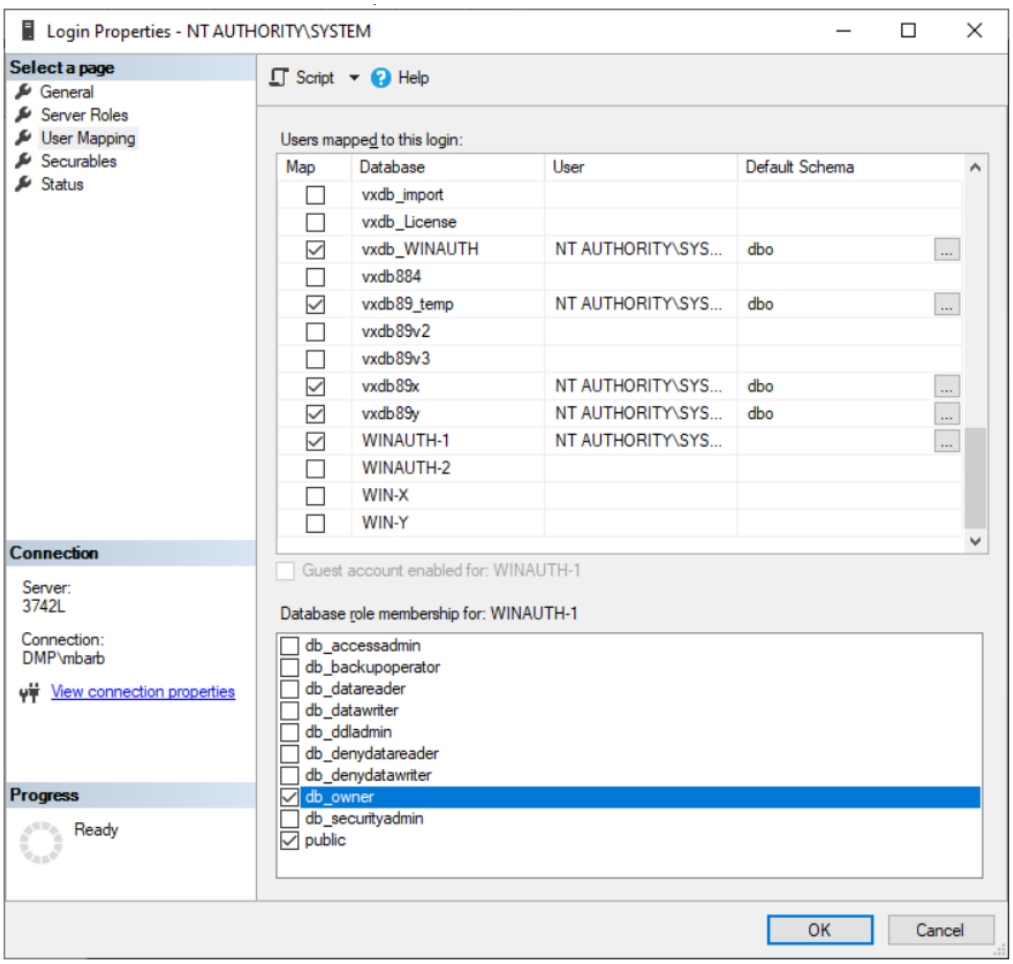
Specific User
To set up the service to run for a specific user login, follow the steps below.
Note: If the user's password changes, the admin will need to change the password on this service configuration.

1. In Services, select **SCS-VR**.
2. Go to the **Log On** tab.
3. Select **This account** and enter the account and password.
4. Select **Apply**.
5. Select **OK**.

Default User
To set up the service to run with the default computer login, set up the logins in SQL SERVER.

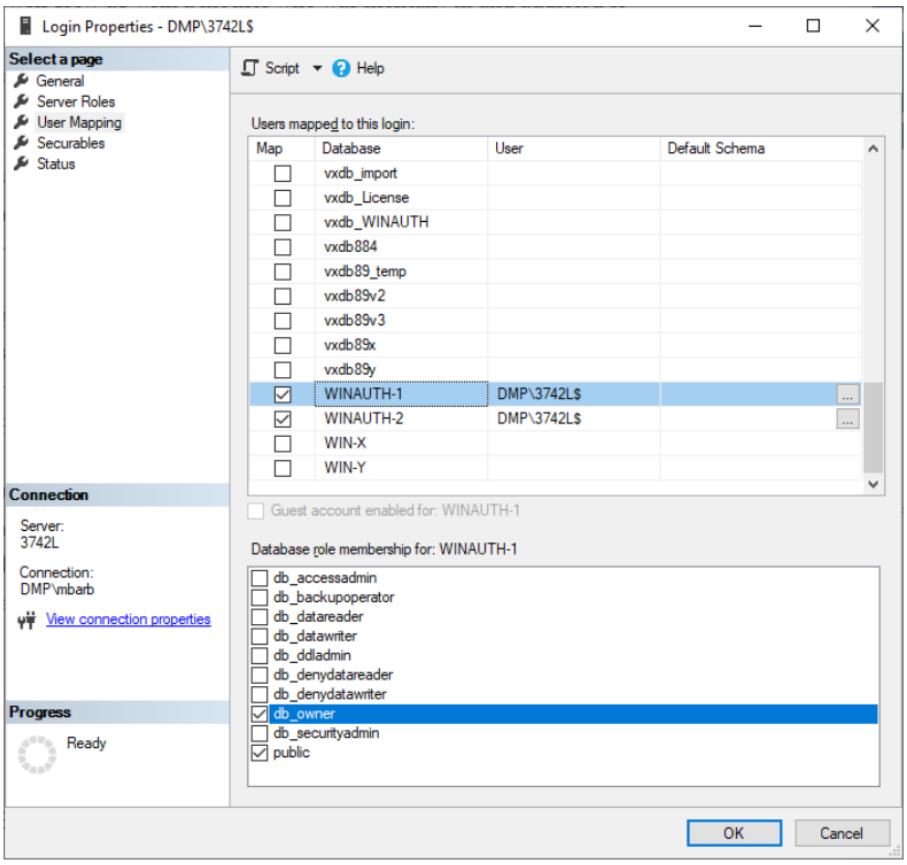
Login Permissions
When the VR and database are on the same machine, the default user will be: **NT AUTHORITY \SYSTEM**.

1. Double-click the service.
2. Go to **User Mapping**.
3. Select the **Users mapped to this login**.
4. Select the user permissions under **Database role membership**.
5. Select **OK**.



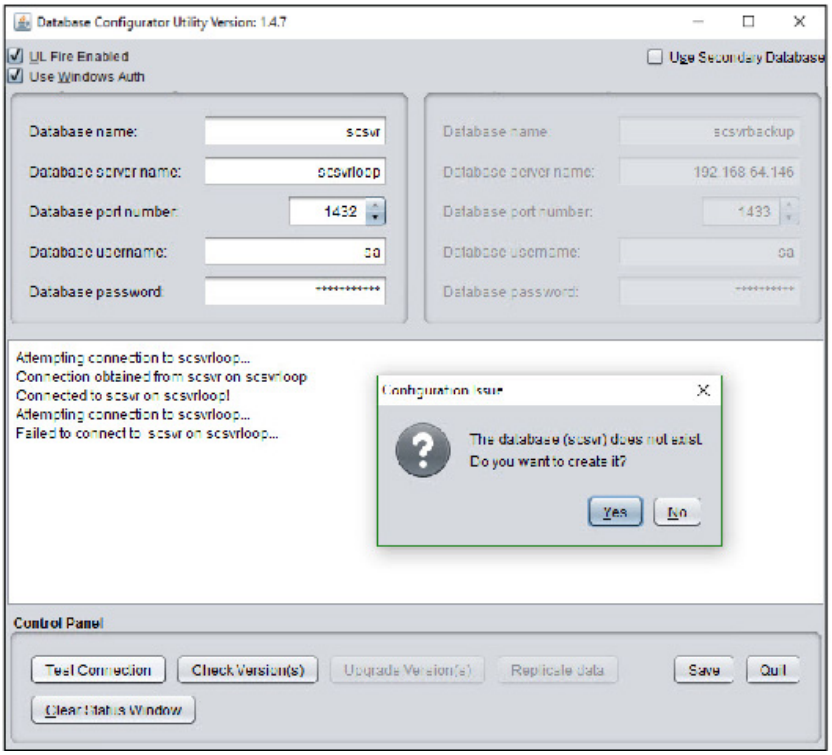
When the VR and database are on separate machines, the service user will look something like: **<domainname>\<machinename>$**.

1. Double-click the service.
2. Go to **User Mapping**.
3. Select the **Users mapped to this login**.
4. Select **OK**.



3.3 Configuration Issue Dialog

This dialog is displayed only if the configured databases do not exist. To create a new database with the information you entered, select **Yes**. To disregard the configuration information and return to the **Database Configurator Utility**, select **No**.



Configuration Issue

3.4 Actions in the Control Panel Section

The **Control Panel** allows you to perform the following actions:

Test Connection
Tests the connection of the configured database(s) by sending the server name, port, username and password to establish a connection to each configured database. To perform this function, the configured user must be an administrator of the SQL server.

Check Version(s)
Determines the version level of the secondary database on the SCS-VR. The database version is displayed in the status window. Newly created databases report as version 0.

Upgrade Version(s)
Automatically enabled if the database is out of date. If selected, this feature upgrades the database to the latest version of the software being installed.

Replicate data
Automatically enabled when configuring a new installation or when upgrading to a new version of SCS-VR. Run **Replicate data** if the secondary database is empty. If selected, the primary database information will be replicated to the secondary database.

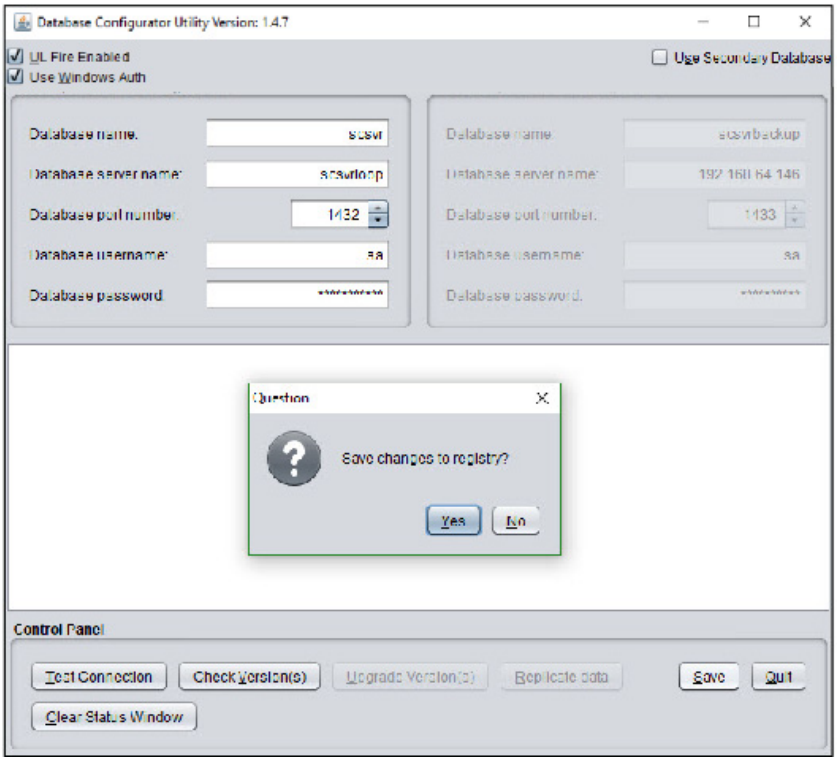
Clear Status Window
Clears the information that displays in the status window (white section in the middle of the screen).

Save
This saves the database configuration to the registry.

Quit
Closes the utility and opens the SCS-VR interface.

3.5 Question Dialog

The **Question** dialog displays to confirm that you want to save the configured database to the registry. To save the database information, select **Yes**. To disregard the information and return to the **Database Configurator Utility**, select **No**.



Question

4. SCS-VR Setup Console

The **SCS-VR Setup Console** is used to connect to a database, start SCS-VR as a Windows service, configure accounts into groups, configure the host automation output, and configure message logs.

Menu Bar

File
Quit the SCS~VR console.

Language
Set the SCS-VR language to either English or Spanish.

Help
Access the help file available in the program directory or view the SCS-VR software version and date code.

Login Menu
Log in as a different user, switch to the default user, or change your password.

Tabs

Configuration
Configure the virtual receiver including servers, databases, and backup databases.

Groups
Configure server groups. A group consists of several panel accounts sending messages over the same IP and port. Up to 20,000 accounts can be in a group.

Panels
Monitor all panels that have communicated with the SCS-VR.

Automation
Monitor all incoming and outgoing automation connections to the SCS-VR.

Message Log
Displays the last 200 messages that have been sent to the SCS-VR and stored in the database.

Off Normal Zones
Displays previous Fire, Fire Verify, Burglary, and Supervisory zones that have not been restored. In addition, Supervised accounts that are not communicating properly display here. Each page contains up to 200 messages.

Users
Program users as viewers, limited, or administrator to restrict what users can view, edit, and delete in SCS-VR.

4.1 Configuration Tab

The **Configuration** tab is used for system configuration. The SCS-VR is designed to operate on various server configurations compatible with Microsoft SQL Server 2012 or higher.

Server Configuration

Server Name

Enter a name for the current server. Default for **Server Name** is blank.

License Key

Enter the license key attached to the disc packaging. If no license key exists, a two-week trial license key is automatically generated after the database is upgraded. The status of the license key is displayed directly below the entry.

Service Code

If you can't register the SCS-VR console online, enter a service code instead of license key.

Database Configuration

The **Database Configurator Utility** is used for initial database configuration or for upgrading an existing database. The **Database Configurator Utility** opens after installation is completed. If **Database Configurator Utility** does not open automatically, run **Configurator.exe** and enter the following information.

Primary Database Name

Enter the name of the primary SCS-VR database.

Primary Host Address

Enter the location of the primary SCS-VR database. If the Microsoft SQL Server is on the same computer as the SCS-VR, enter the localhost address, such as **127.0.0.1** or **localhost**.

Port

Enter the TCP port number or use the default, port **1433**.

Primary Username

Enter a username to authorize access to the primary SQL database.

Primary Password

Enter a password to authorize access to the primary SQL database.

Backup Database Configuration

Backup Database Name

Enter the name of the backup SCS-VR database.

Backup Host Address

Enter the location of the backup SCS-VR database. If the Microsoft SQL Server is on the

same computer as the SCS-VR, enter the localhost address, such as **127.0.0.1** or **localhost**.

Port
Enter the TCP port number or use the default, port **1433**.

Backup Username
Enter a username to authorize access to the secondary SQL database.

Backup Password
Enter a password to authorize access to the secondary SQL database.

Swap to Backup Database
Select this option to manually switch from the primary database to the backup database.

Database Options

The current database is
Enter the name of the database.

Enable trap checking
Authorize IP addresses and ports to be used for sending traps. If enabled, the **Valid Traps** tab becomes available.

Process Check-In Zero
If communication is interrupted between the panel and receiver, the panel sends a check-in message to the receiver's IP2 once communication is restored to IP1. **Send Stored Messages** must be enabled to use this feature.

Send Stored Messages
If enabled, messages will be stored in the panel if communication to the receiver is interrupted. Once communication is restored, the panel will send all stored messages to the receiver. Each stored message provides the number of minutes that have passed since the event occurred.

Service and Database Control

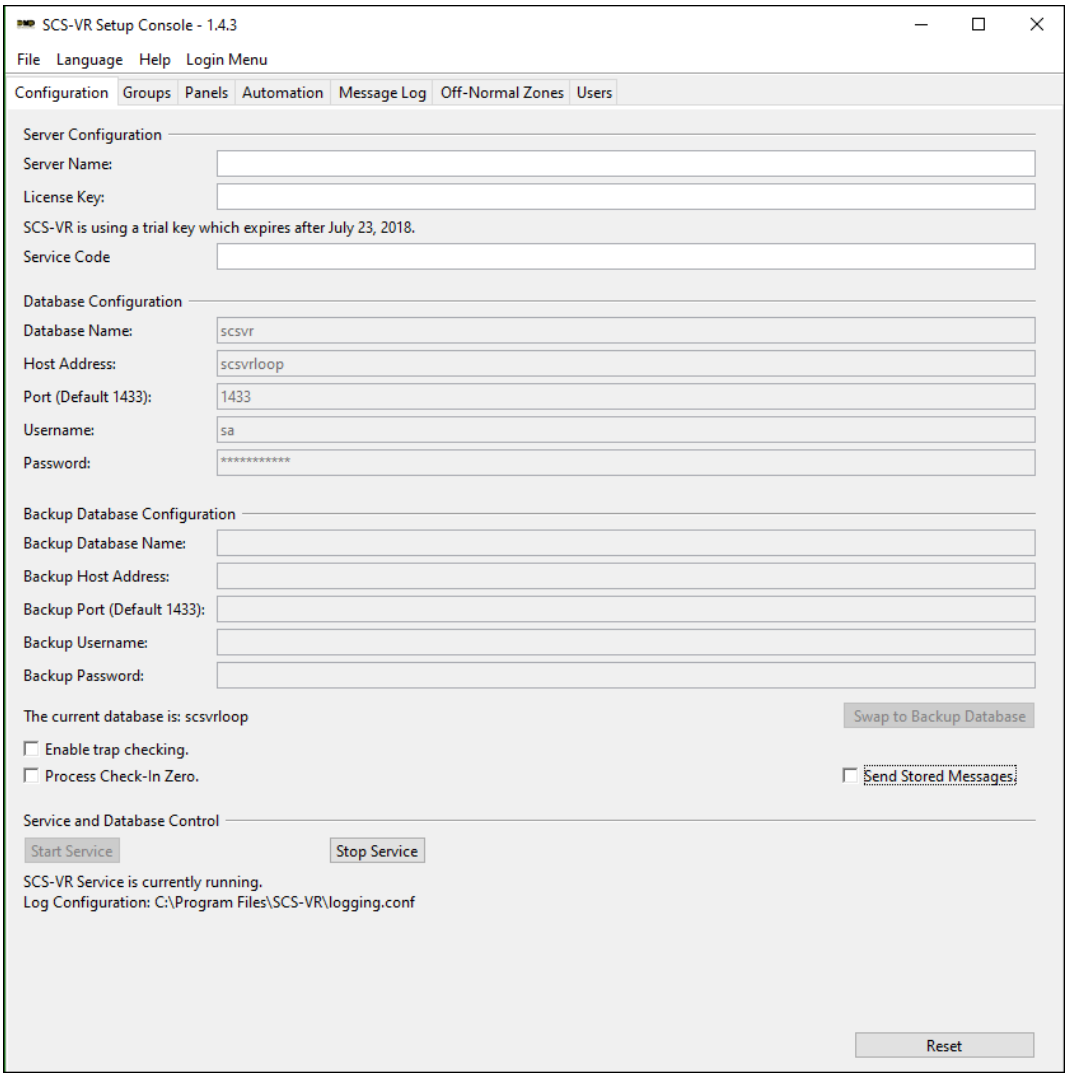
Start Service
Start SCS-VR services. This feature is only available if the selected Windows service is currently stopped. The status of the selected Windows service appears directly under the **Start Service** button.

Stop Service
Stop SCS-VR services. This feature is only available if the selected Windows service is currently running. The status of the selected Windows service appears directly under the **Start Service** button.

SCS-VR Status

Displays the SCS-VR current status as either currently running or is currently unknown.

Log Configuration
The mapped location where the SCS-VR log is stored.



Configuration

4.2 Groups Tab

Each server can be configured to contain multiple groups. A group consists of several panel accounts using the same IP address and port. Up to 20,000 accounts can be assigned to a group.

Group Name

Group Name

Enter a name for this group. If no name is entered, the default name is the port number.

Enable this group on server 1

Select to allow the listed server to serve this group.

Network Settings

Protocol

Choose either TCP or UDP.

Encryption Passphrase

If the panel sends encrypted messages, then enter the passphrase used to encrypt and decrypt messages. The passphrase must match the passphrase entered in the **NETWORK OPTIONS** panel programming.

Port Number

Select the port number that the receiver listens to for incoming alarm messages and traps. The default is **2001** for the first group and increases by three with each group added. After assigning port numbers, select **Apply** then **Restart Service** to save changes.

Enable TCP

Select to enable communication from TCP-enabled panels. The default is enabled.

Enable UDP

Select to enable communication from UDP-enabled panels. The default is enabled.

Communication Settings

Note: Changing any of the **Communications Settings** and selecting **Apply** will clear any pending messages.

Container Format

The format to use when sending messages to automation. The order is determined by the automation server that is communicating with the SCS-VR. An example container format is: %05g%5a %m%13x. Based on the table below, the example would send the following information to the automation server: Group number padded with 5 leading zeros, account number padded with 5 trailing spaces, message payload, and carriage return.

Expected ACK

The expected response from automation when SCS-VR dispatches a message.

Outgoing ACK
The message sent in response to the automation.

ACK CODE	MEANING
%*N*x	*N* is any number from 0-255
%13x	Carriage return
%a	Account number
%g	Group number
%s	Server number
%S	Server name
%p	Port number for this group
%m	Message payload
%5aC	Account number padded with up to 5 characters, where *C* is a character.
%05a	Account number padded with zeros up to 5 characters

Message Expiration Delay (Hours)
Enter the number of minutes the SCS-VR holds a message to automation before discarding it. To never discard the message, enter a zero. Default is **0** (zero).

The following is a list of types of delays for message deletion:
- **Checkin Message Deletion Delay (Hours)**
- **Alarm Message Deletion Delay (Hours)**
- **Other Message Deletion Delay (Hours)**

Automation Connections

Outbound Tab
Both IPv4 and IPv6 addresses are supported in outbound primary and backup address fields.
- **Primary Server Address**—The IP address of the primary outbound automation.
- **Port**—Select the Port number for the primary server. Default is **2002**.
- **Backup Server Address**—Enter the IP address of the backup outbound automation.
- **Port**—Select the port number for the backup server. Default is **2002**.

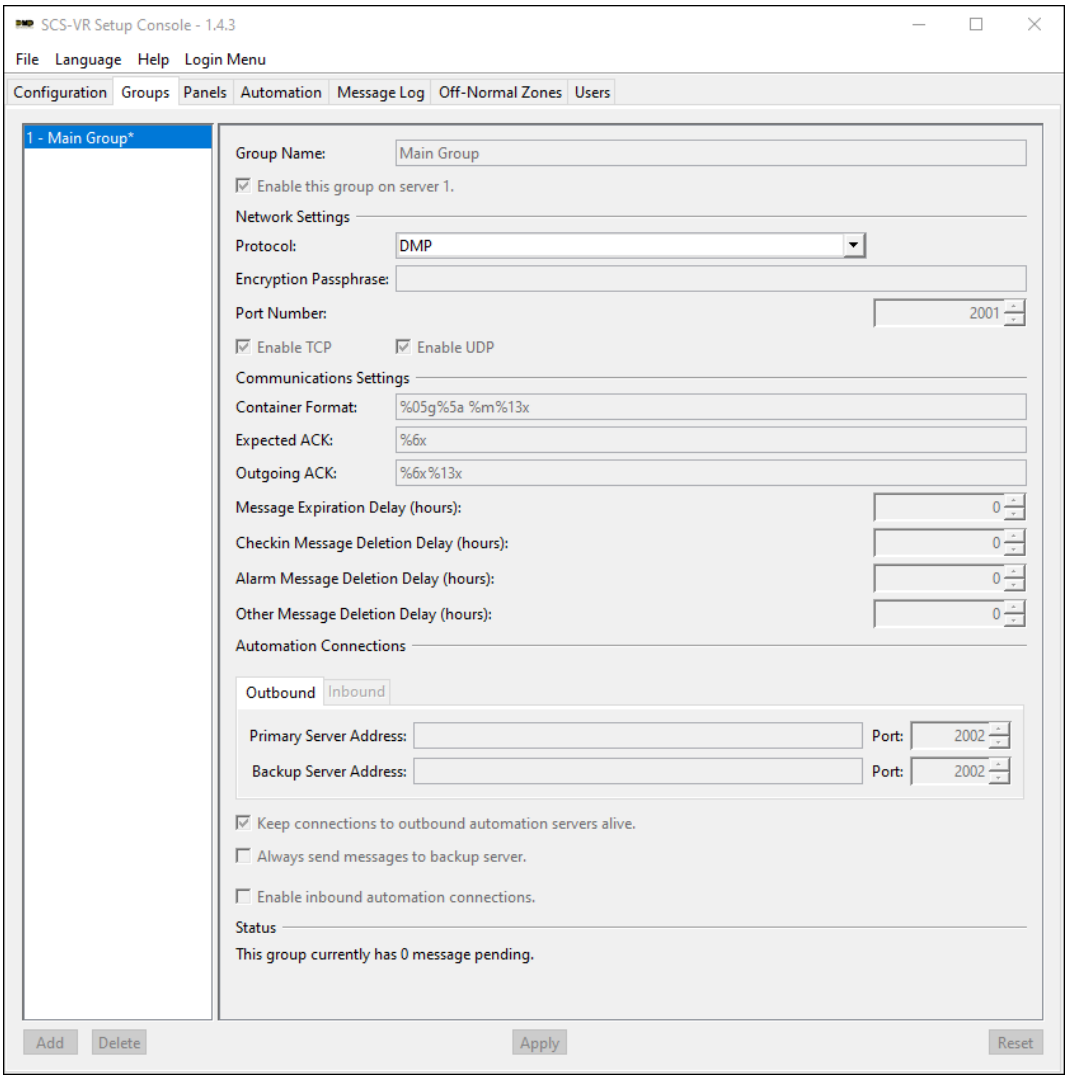
Inbound Tab
- **Primary Server Address**—Select the port number for the primary inbound automation. Default is **2002**.
- **Port**—Select the port number for the backup inbound automation. Default is **2003**.

Keep connections to automation servers alive
Select to keep outgoing connections to automation servers open after dispatching a message. All communication between the SCS-VR and the automation server uses TCP protocol. Default is enabled.

Always send messages to the backup server
If selected, the SCS-VR treats the backup server as a second primary server.

Enable inbound automation connections
If selected, the **Inbound** tab is displayed. This allows port configuration so the SCS-VR can listen for inbound automations.

Status
Lists the status of any pending messages for a particular group.



Groups

4.3 Panels Tab

The **Panels** tab is used to monitor all panels that have communicated with with the SCS-VR.

Panel Groups and Account Numbers

Receiver Group

Select a receiver group to display or select **All Receiver Groups** to list all of the panels. **Receiver Group** displays all the panels associated on the groups tab. Default is **All Receiver Groups**. If new groups were recently added, select **Refresh List** for them to appear in the drop-down menu list.

Account Numbers

Enter the account numbers or range of account numbers to display. If no account numbers are selected, all account numbers associated with the selected groups are displayed.

Panel Filtering Options

Show all panels

Display all panels. If no account numbers are selected, then all account numbers are displayed. Select **Refresh List** to activate this filter.

Show only panels that are missing

Display only missing panels. If no account numbers are selected, then all account numbers are displayed. Select **Refresh List** to activate this filter.

Show Communication Status

Highlight the panel communication status with the receiver. The listed panels will be highlighted with one of the following colors:

- Green—Panel is communicating as expected
- Yellow—Panel did not receive proper acknowledgment from the receiver (s72 message)
- Red—Panel has missed its check-in time (s16 message)

Show only panels with any failure

Display only panels with any failure. If no account numbers are selected, all account numbers are displayed. If a panel restores, the display continues to show the failure until the list is refreshed. Select **Refresh List** to activate this filter.

Show only panels with failed substitution

Display only panels with failed substitution. If no account numbers are selected, then all account numbers are displayed. If a panel restores, the display continues to show the failure until the list is refreshed. Select **Refresh List** to activate this filter.

Missing Panels

Display the total number of missing panels at the bottom of the **Panels** Tab. This feature can be enabled when using other filters.

Substituted Panels

Display the total number of panel substitutions at the bottom of the **Panels** Tab. This feature can be enabled when using other filters.

To show missing and substituted panels at the bottom of the panels tab, go to **Program Files > SCS-VR > Properties** and open **system.properties**. Add the following line to the properties file: show_panel_summary=true. Save and close the properties file.

Panel View Mode

All
Includes **Group**, **Account**, **Last Check-in**, **Next Check-in**, **Substitution**, **Encryption**, **IP Origin**, **Received Time** (of last message), **Last Message** (text of last message), **Recent Bandwidth**, and **Average Bandwidth**.

Check-in
Includes **Group**, **Account**, **Last Check-in**, and **Next Check-in Before**.

Security
Includes **Group**, **Account**, **Substitution**, and **Encryption**.

History
Includes **Group**, **Account**, **Received Time**, and **Last Message**.

Network
Includes **Group**, **Account**, **IP Origin**, **Recent Bandwidth**, and **Average Bandwidth**.

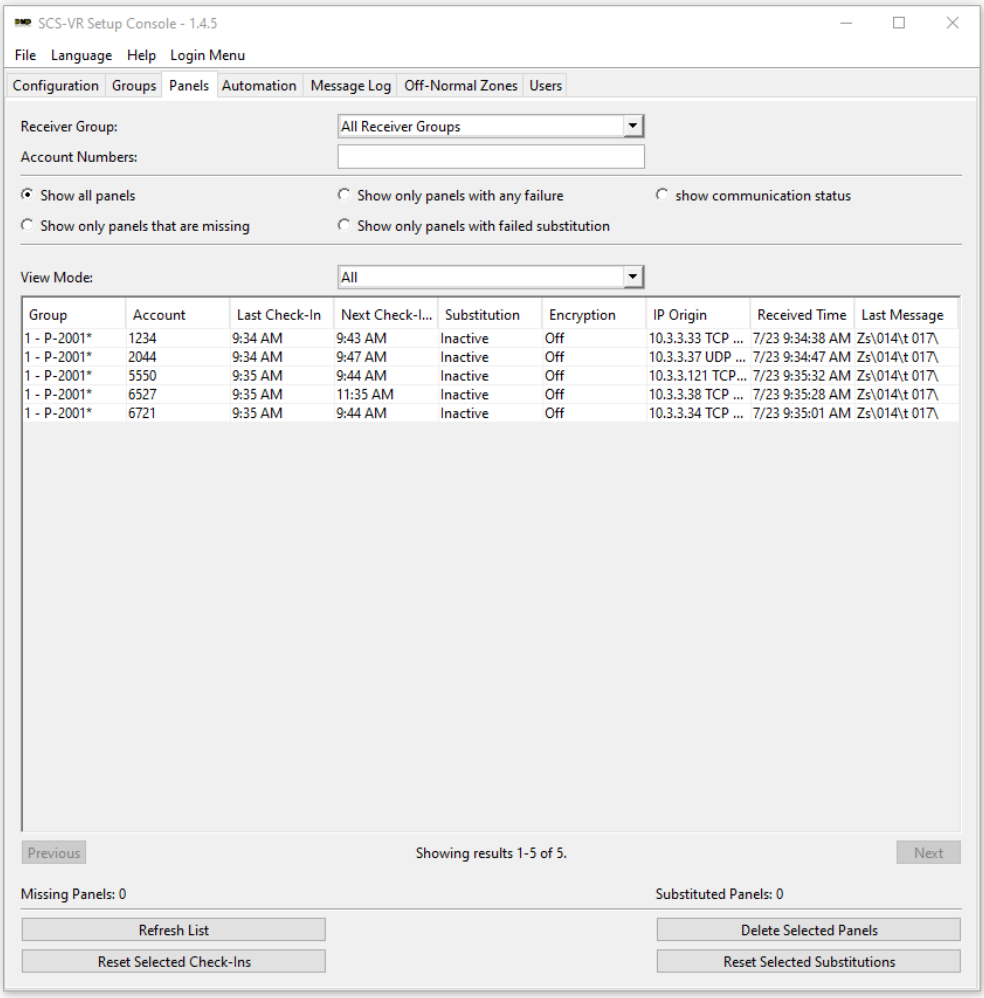
Panel View Mode Options

Refresh List
Select to refresh the list after each new selection above, except for the **View Mode**.

Delete Selected Panels
Delete any selected panels displayed above from the panel display. This deletes the panel from the receiver and database.

Reset Selected Check-Ins
Reset Check-ins for the selected panels.

Reset Selected Substitutions
Reset substitutions for the selected panels.



Panels

4.4 Automation Tab

The **Automation** tab is used to monitor all incoming and outgoing automation connections to SCS-VR.

Automation Information

Server
The name of the SCS-VR server.

Group
The group associated with the automation.

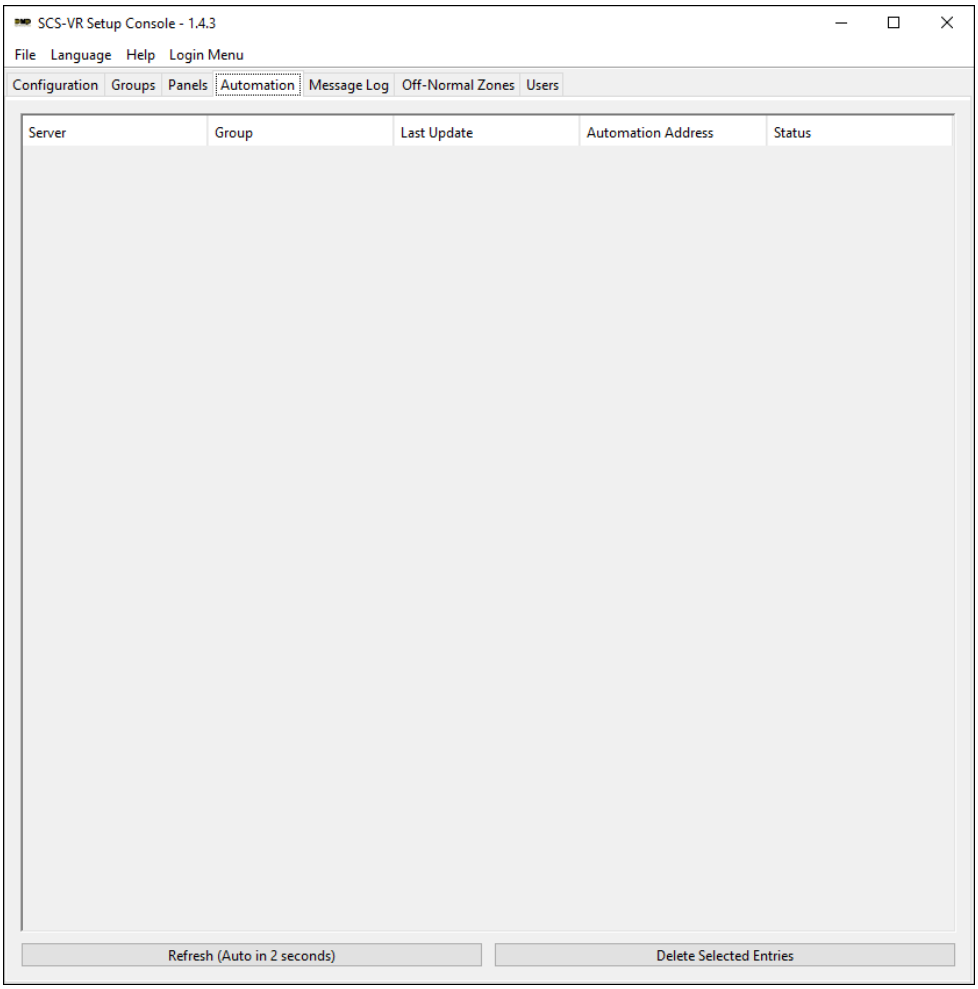
Last Update
The time that the last message was sent to automation from the selected group.

Automation Address
The address where the SCS-VR server sends messages.

Status
The status of the connection between the SCS-VR automation and TCP/IP (Example: **Open**, **Closed**, **Listening**, or **Failed**).

Refresh
Manually refresh the window. The display refreshes automatically every 5 seconds.

Delete Selected Entries
Delete any selected entries from the automation window.



Automation

4.5 Message Log Tab

The **Message Log** tab displays all of the messages that are sent to the SCS-VR and stored in the database. Each page can display up to 200 messages.

Receiver Groups and Account Numbers

Receiver Group

Display the panels associated with a receiver group or select **All Receiver Groups** to list all of the panels. The default selection is **All Receiver Groups**.

Account Numbers

Enter the account number or range of account numbers to display. If no account numbers are selected, all account numbers are displayed.

Message Log Filtering Options

Note: Filtering with their options may hide any unacknowledged alarms from being displayed in the message log.

- **Non-Check-in Message**—Show messages not related to device check-in, such as alarms and troubles
- **Check-in Message**—Show messages related to device check-in
- **Decryption Failed**—Show messages where communication with a device has not been decrypted
- **Unrecognizable message**—Show unrecognizable messages
- **Stop Scrolling**—Stop the screen from scrolling when new messages arrive

Acknowledge

To acknowledge a message, select it, then press the **Acknowledge** button or press F6. The acknowledged message will move to the appropriate priority in the message list and return to the list of messages ordered by time.

Note: The **Acknowledge** button will only be enabled when the message selected requires acknowledgment. For more information, refer to **Event Type Sorting**.

Message Log Display

When an alarm or trouble message is received, it is displayed in the list highlighted in violet. The messages are listed in descending order, with the most recent at the top. An alert tone will sound and continue to do so until all the unacknowledged alarm and trouble messages have been acknowledged. After messages have been acknowledged, they display in chronological order and are color coded according to message type. For more information, refer to the **Event Color Codes** table.

Server Column

Displays the name of the SCS-VR server.

Group Column

Displays the group of the SCS-VR server is associated with.

Account Column
Displays the panel account number sending the message.

Type Column
Displays the type of message being sent.

Time Column
Displays the time that the message was received for technical diagnostics.

Message Column
Displays messages for technical diagnostics.

Acknowledge Time Column
Displays the time that messages were manually acknowledged, if applicable.

Event Color Codes

EVENT COLOR	EVENT TYPE
Red	Fire Alarm, Fire Trouble, and Fire Restore
Yellow	Burglary Alarm or Burglary Trouble
Green	Emergency
Gray	Auxiliary 1 and Auxiliary 2
Orange	Supervisory Zone
Light Green	Panic
No Color	System messages and all others that do not require acknowledgment

Priority Sorting

Unacknowledged messages will display in descending order with the most recent at the top. After messages have been acknowledged, they display by priority along with the time and date of acknowledgment. Messages that do not require manual acknowledgment will be displayed with the acknowledged messages.

Event Type Sorting

Immediate event types that require manual acknowledgment are prioritized for display in the following order:

EVENT TYPES
Fire Alarm

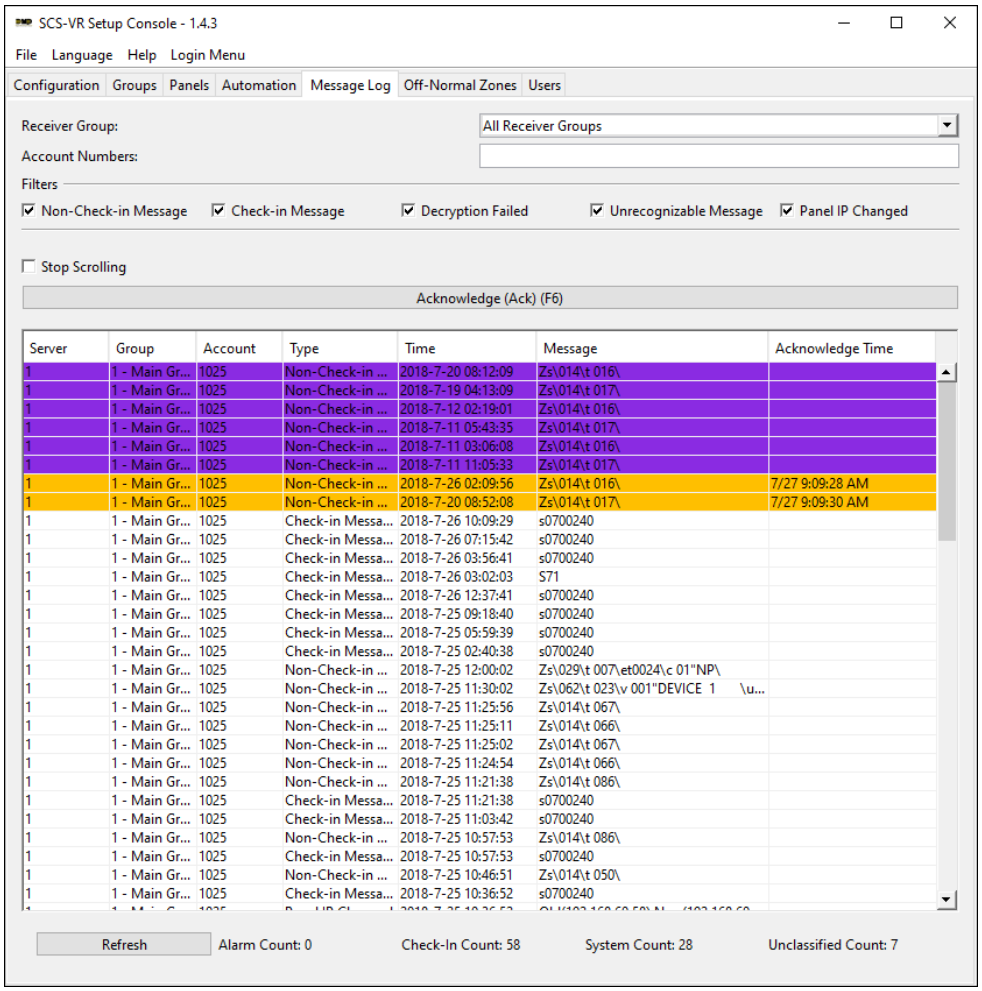
EVENT TYPES
Panic Alarms and Ambush (s15)
Burglary Alarm
All Supervisory messages, Panel Tamper (s11), Panel Not Responding (s16), and Panel Substitution (s58)
All Emergency messages
Auxiliary 1 and Auxiliary 2 Alarms
Fire Troubles
Other Fire (clean me, zone fault, etc.)
Other Burglary (zone trouble, zone fault, etc.)

Note: Automatic Recall Test OK (S07) and System Check (S99) will not display in the message log.

Message Log Data

Displayed at the bottom of the window next to **Refresh** when data is available.

- **Alarm Count**—Total number of alarms in a group
- **Check-In Count**—Total number of check-ins in a group
- **System Count**—Total number of systems in a group
- **Unclassified Count**—Total number of systems that cannot be classified by **Alarm Count**, **Check-in Count**, or **System Count**
- **Refresh**—Manually refresh the message log

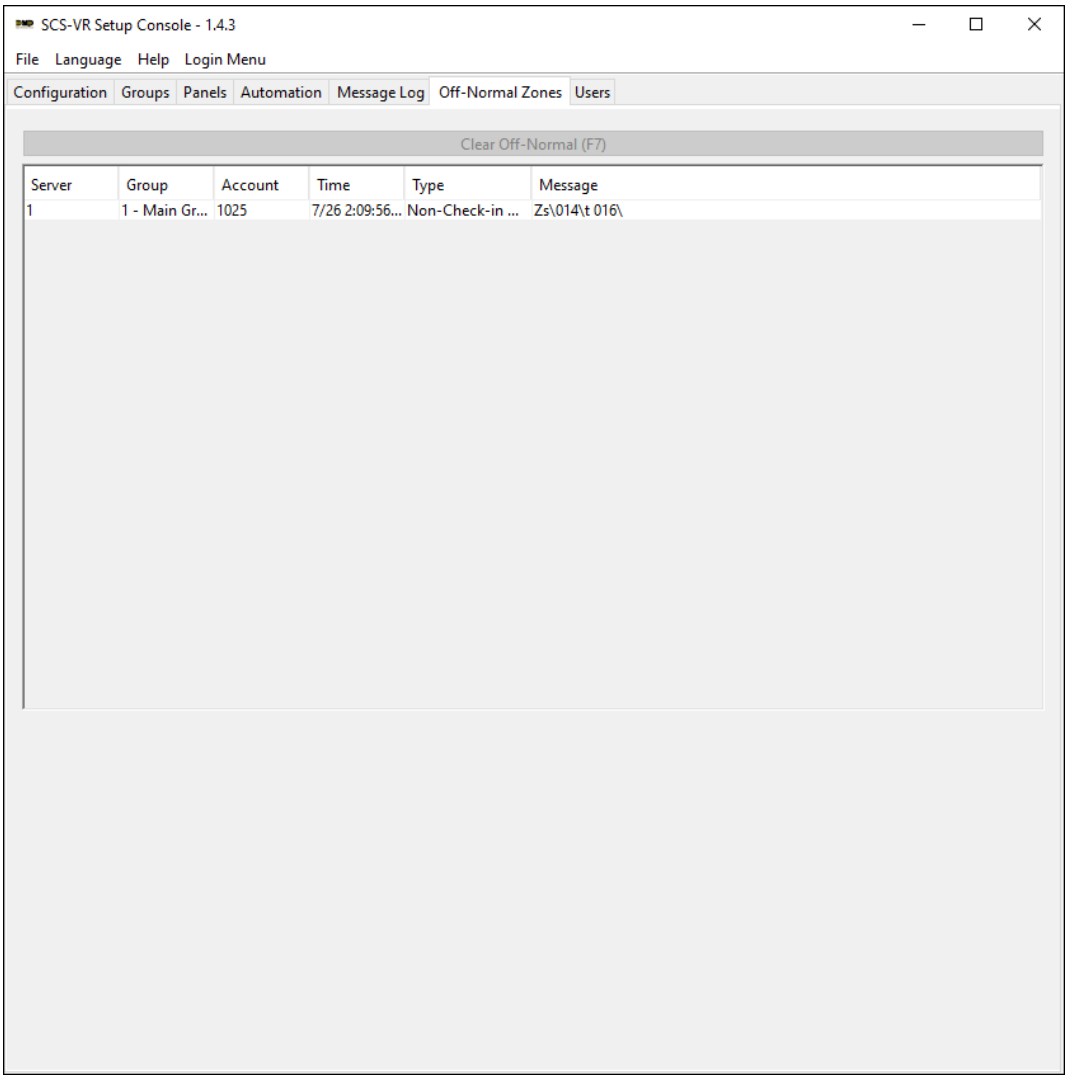


Message Log

4.6 Off-Normal Zones Tab

The **Off Normal Zones** tab displays previous Fire, Fire Verify, Burglary, and Supervision zones that have not been restored. In addition, supervised accounts that are not communicating properly are displayed in **Off-Normal Zones**. Each page displays up to 200 messages.

Note: Pressing the **Clear Off-Normal** button or F7 will remove a selected zone from the list.



Off-Normal Zones

4.7 Users Tab

Users

Add, change, or delete SCS-VR users from the **Users** tab. You can limit access to SCS-VR functionality by assigning authority levels to users.

Users Tab Actions

Add User

Add a new user to SCS-VR. Enter a username, choose an **Access Level**, and enter the user's password.

Change User Access

Change an existing user's **Access Level**.

Viewer

- Can view the panels and automation tabs
- Can search and sort panels
- Can refresh information
- Can view and perform all functions associated with the message log

Limited

- Can view the configuration, panels, and automation tabs
- Can edit the service code
- Can delete some information
- Can view and perform all functions associated with the **Users** tab

Admin

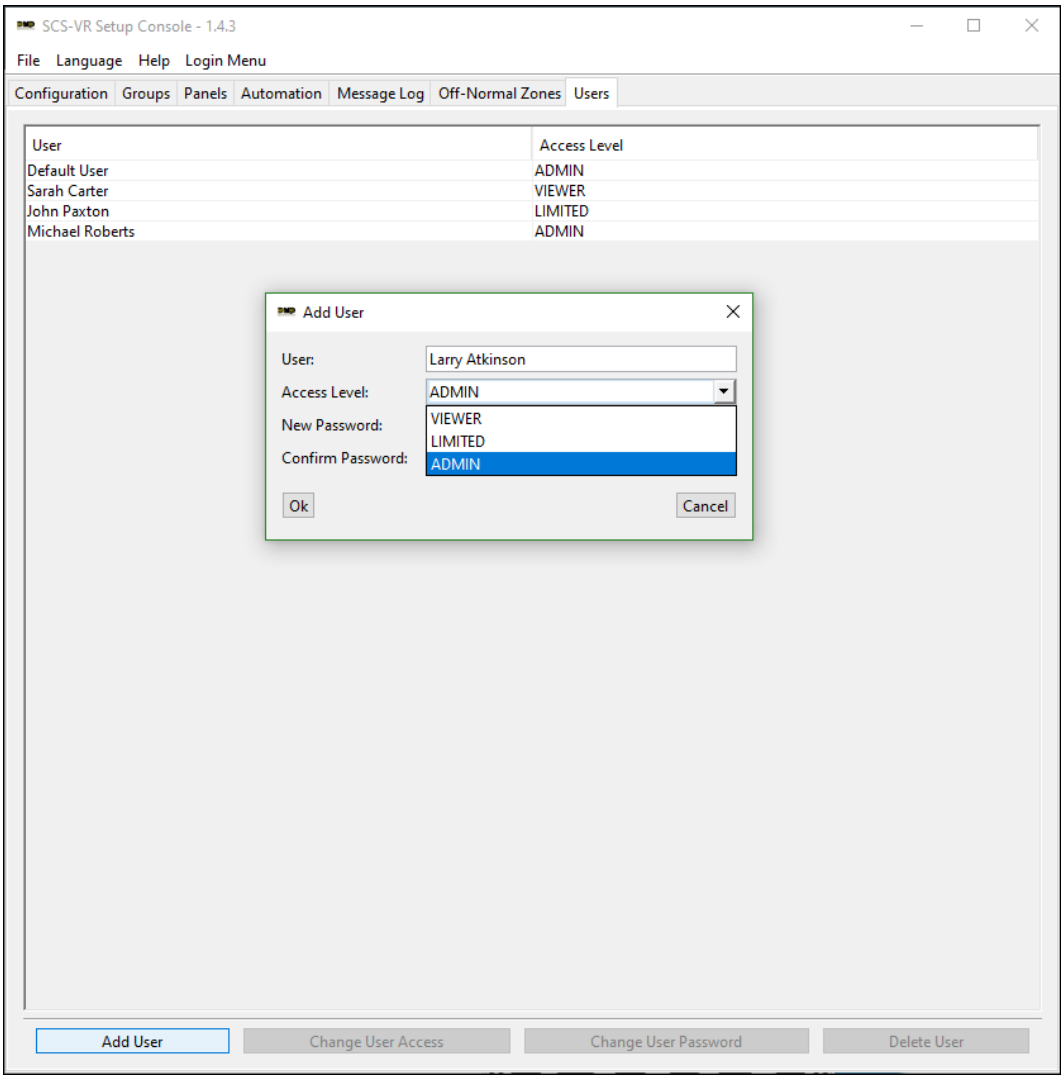
- Can access all tabs in SCS-VR
- Can perform all functions in SCS-VR

Change User Password

Change an existing user's password

Delete User

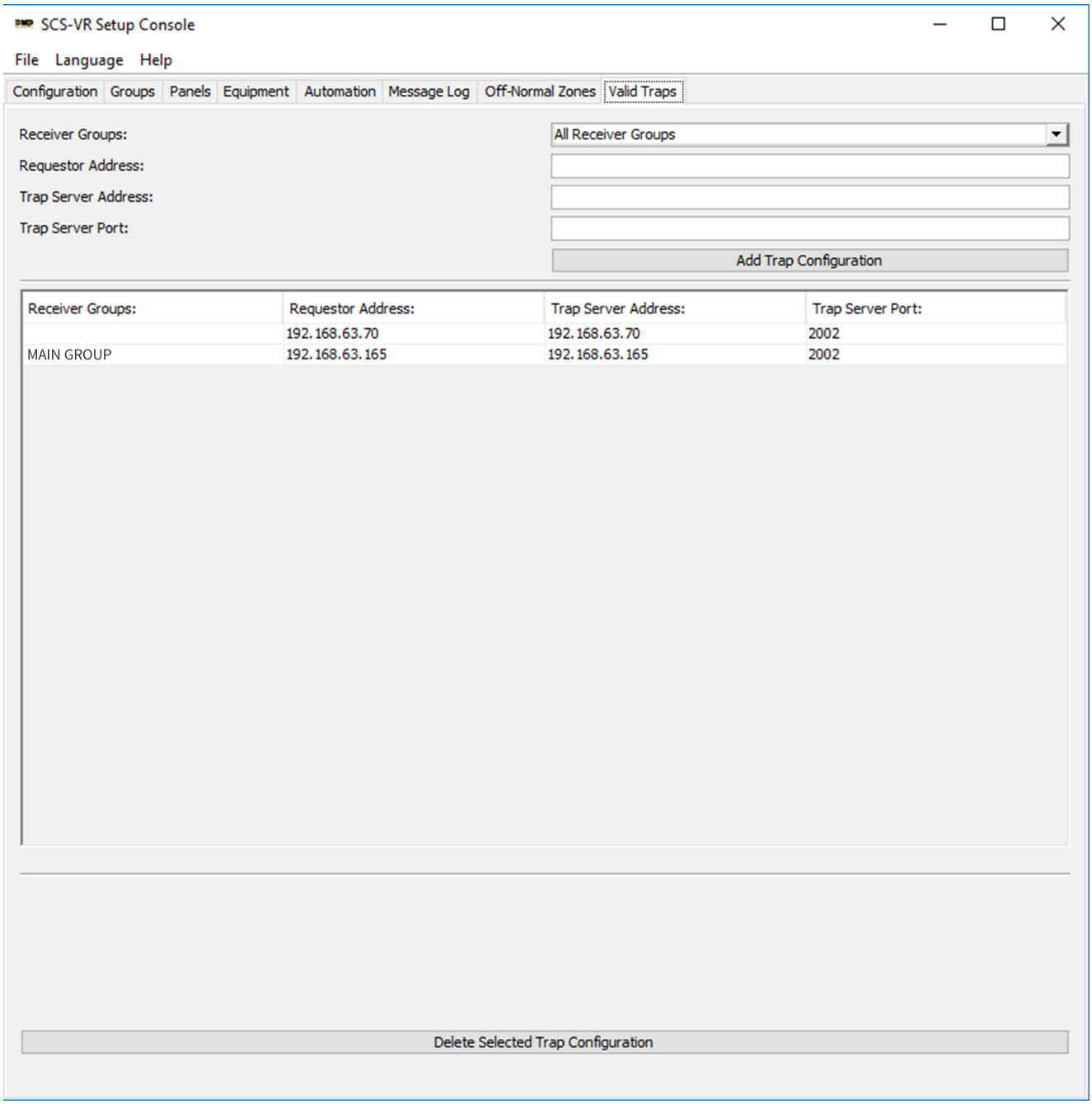
Permanently delete a user from the system.



Users

4.8 Valid Traps Tab

The **Valid Traps** tab is used to configure which IP addresses and ports can be used for traps. If no configuration is entered, SCS-VR uses the default restrictions. You must enable trap verification in the **Configuration** tab to see the **Valid Traps** tab.



Valid Traps

Designed, engineered, and
manufactured in Springfield, MO
using U.S. and global components.
LT-1327 22071

INTRUSION - FIRE - ACCESS - NETWORKS
2500 North Partnership Boulevard
Springfield, Missouri 65803-8877
800.641.4282 | DMP.com