

Documentation for

SAN Remo

Configuration Management

Supplement





Supplement for the "SpycerBox Ultra/Flex" Hardware Guide: "SAN Remo"
Document Version 1.1 for the software version 2.5

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SAN Remo Supplement

This document describes how to work with SAN Remo, DVS's user interface that allows you to configure and monitor your SpycerBox infrastructure. SAN Remo gives you the possibility to configure nodes and obtain an overview of your hardware status as well as of performance and bandwidth parameters.

The graphical user interface of SAN Remo is layed out to be self-explanatory. This document provides additional information that makes some aspects of the software more accessible to help you in getting started with the SAN Remo software.

This document contains the following information:

- Important Notes
- Structural Concepts
- Starting the Software and User Interface
 - Starting the Software in a Web Browser
 - The User Interface
- Working with SAN Remo
 - Features
 - Clusters
 - Nodes
 - Dashboard
 - Monitoring
 - User Levels
 - Support
- Miscellaneous
 - Working with Configuration Files
 - Gathering Log Files



1 Important Notes

To use the SAN Remo software correctly, please heed the following:



The SAN Remo software version 2.5 is installed on a SpycerBox from hardware revision 4 and upwards as standard.



The software is intended to be used with Mozilla Firefox version 4.0 and higher, Internet Explorer version 11 and higher, Google Chrome and Safari.

The recommended screen resolution is at least 1024 x 768.



The SAN Remo user interface can be used with several browser instances in parallel. Please note that the more user interfaces are opened, the lower the performance of the SAN Remo user interface could become.



When using the key [Enter] to e.g. submit or save changes of an option or entry, the focus must be in an entry field. The action shown in the blue-highlighted button will then be carried out.



SAN Remo provides a user level management including an admin user, an operator and a guest. You need to log in with the respective password to make use of the SAN Remo software in the nodes view (see section "Nodes" on page 1-12).

How to add a new user to a node and further information about the user levels can be found in section "User Levels" on page 1-14.



The systems are delivered with the following standard users and passwords:

- For the admin user login/password
 - admin/admin
- For the operator user login/password
 - operator/operator
- For the guest user login/password
 - guest/guest

2 Structural Concepts

The integrated WS-DD protocol lays the foundation for the easy handling of all systems in the entire network by establishing a stable, decentralized infrastructure. Thanks to this, new systems can comfortably be integrated into the network – not needing any additional configuration processes. Due to a Service-Oriented Architecture (SOA), communicating with other clients is easy using web service interfaces such as SOAP.

SAN Remo follows an easily understandable structural concept. The main parts of the structure are shown in the following figure:

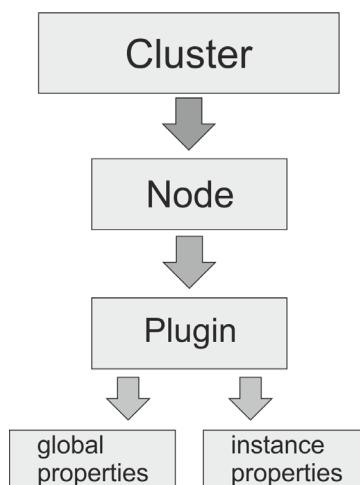


Figure 1-1: Structure of the SAN Remo functionality

SAN Remo allows the management and the monitoring of different nodes i.e. different systems. These nodes can be organized in clusters that form an organizational unit indicating the relation of nodes and clusters. A node represents a machine (e.g. a SpyckerBox) in terms of its monitorable and configurable aspects. The SAN Remo software is installed on the machine and contains the SAN Remo web user interface. It provides all features for the user interaction. Via the web user interface you can configure and monitor nodes with other SAN Remo installations as well, as long as the software versions are compatible.

In the node view of the software you see all configurable and monitorable parts which are represented by plugins in form of icons. Every plugin provides access to certain functions and information of the machine SAN Remo is installed on. Via the plugins you can control e.g. system functions, installed software and services.



Depending on your requirements, different plugins can be installed or uninstalled. Please contact the DVS service department for further information.

All new plugins of a SAN Remo software release are listed in the respective release note.



Every plugin represents the configurable parts in terms of properties.
There are two kinds of properties:

- The global (plugin) properties such as the hostname of a node.
Only one can be assigned to a node.
- The instance properties which may exist more than once such as
the network interfaces of a node. Several network interfaces can be
configured for a node.

The main differences between the two property types are the cardinality and the way you can access them in the user interface.



3 Starting the Software and User Interface

3.1 Starting the Software in a Web Browser

The user interface allows monitoring and configuring different nodes which are available in the network. It can be accessed via a web browser and is designed for a screen size of at least 1024 × 768.

The web-based user interface can be accessed by typing the machine's IP address or DNS name into a browser's address bar and entering a valid user name and password. When you see the SAN Remo user interface in its default cluster view (button **CLUSTER** selected), you have started the software.



Supported browsers are Mozilla Firefox version 4.0 and higher, Google Chrome, Internet Explorer version 11 and higher, Google Chrome and Safari.



SAN Remo provides a user level management including an admin user, an operator and a guest. You need to log in with the respective password to make use of the SAN Remo software in the nodes view (see section "Nodes" on page 1-12).

3.2 The User Interface

When starting the software in a web browser, you will see the SAN Remo user interface in its default cluster view.

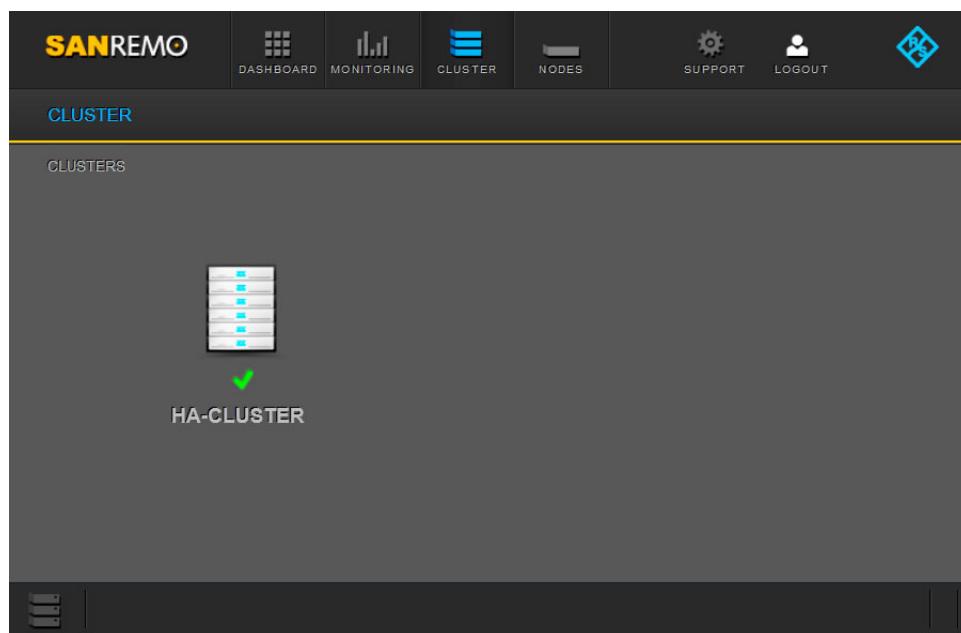


Figure 1-2: SAN Remo user interface after starting the software



The user interface consists of the header, the footer and the different views.

The header provides the following buttons and functionalities:

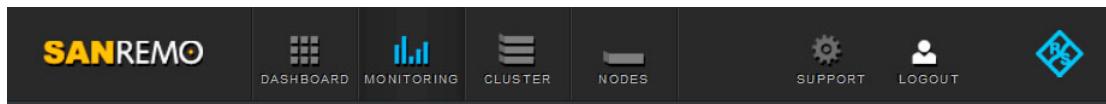


Figure 1-3: Header of the SAN Remo user interface

The header on top of the user interface allows switching the different views. It contains the buttons:

- **DASHBOARD** (switches to the tachometer showing the data throughput in GB/s)
- **MONITORING** (switches to monitoring view)
- **CLUSTER** (switches to cluster view)
- **NODES** (switches to nodes view)
- **SUPPORT** (contains the documentation and support contact information)
- SAN Remo and R&S logos (switches to the default cluster view)

Below the header you find the navigation bar that shows you the view you are currently in:

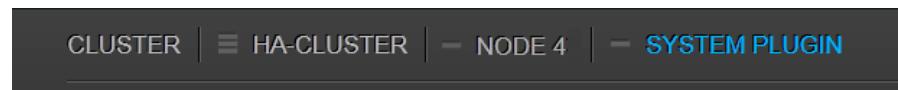


Figure 1-4: Navigation bar

You can use this navigation to e.g. jump back to a certain view as well. Below it you find further information e.g. about the node like product name, hostname, serial number or total memory.

The footer provides a few information regarding the node which is currently browsed:

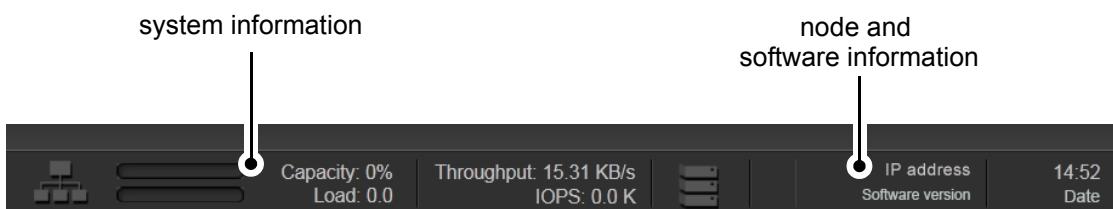


Figure 1-5: Footer of the SAN Remo user interface



The footer changes its content depending on the view you have selected.

State/Item	Explanation
'system information'	This area provides you with information regarding the respective node (IP address) shown in the 'node and software information' field. It shows you the disk capacity, the system load, data throughput in MB/s or KB/s and input/output operations per second (IOPS).
'node and software information'	In this area you see the IP address of the node that is actually shown. Furthermore, you see the software version that is installed on the respective system indicated by the IP address.



To update only the view in the browser window, press [F5]. The network is monitored constantly.

The state of a machine, service or plugin is indicated by icons. Via mouse over you can receive further information. The following icons are to be found:

- Green checkmark  indicating the respective option is available, working or connected correctly
- Yellow exclamation mark  indicating a malfunction or warning
- Red 'X'  indicating a stopped service or a disabled network interface
- Down-arrow  indicating the state of the Fibre Channel connection and meaning physically disconnected interfaces

Most of the configuration options of the respective device or plugin can be accessed via the edit buttons  to the top right in each view.



4 Working with SAN Remo

4.1 Features

SAN Remo 2.5 provides many features for viewing and/or configuring the following and more components:

User Level

SAN Remo provides a user level management including an admin user, an operator and a guest. You need to log in with the respective password to make use of the SAN Remo software in the nodes view (see section “Nodes” on page 1-12).

The user levels are:

- The admin user with all administrative rights to reboot or shut down nodes, add and delete clusters and make further configurations.
 - Default login/password: admin/admin
- The operator that can change settings but has no rights to reboot or shut down nodes or add and delete user accounts.
 - Default login/password: operator/operator
- The guest user that can browse and make use of the monitoring features in SAN Remo.
 - Default login/password: guest/guest

Network Interfaces

SAN Remo allows you to configure DHCP or static IP addresses, net-masks and up to three DNS name servers. It allows you to manage bonded interfaces as well. Furthermore, gateway, hostname, domain and domain search path configurations are possible. The data throughput of the network interfaces can be monitored if available.

Fibre Channel Interfaces

Regarding the Fibre Channel interfaces you can configure the target or initiator mode if the respective system supports this. The speed and status of the link can be monitored.

LUNs

SAN Remo gives you the possibility to locate a certain hard drive. Furthermore, you can switch to a list of LUNs/RAID arrays, the related block devices, the LUN's status, the RAID levels and a list of physical hard drives and their status.



System

With SAN Remo you can reboot and shutdown a machine from the user interface. The monitoring feature gives you an overview of the memory usage, system load, system temperatures, fan speeds, disk IOPS, total disk and network throughput as well as the locally mounted file systems with their total and used disk capacities.

StorNext

In the software you can start and stop the StorNext file system. Furthermore, you can view the status of the StorNext file system and its license information.

NFS

Using the SAN Remo software you can start and stop the Network File System (NFS) as well as add and delete NFS exports and permissions. The NFS status can be monitored.

Samba

With SAN Remo you can start and stop Samba, set workgroup and netbios names, add and delete shares and its paths to be shared as well as configure read and write permissions. The Samba status can be monitored.

NTP

The SAN Remo software allows you to start and stop the Network Time Protocol (NTP), add or remove an NTP server, change iBurst server options or add customized options as well as add and remove access restrictions. The status of the NTP server can be monitored. Furthermore, the NTP server can be used as fallback server for time synchronization.

Further Configurations

With the SAN Remo software you can configure IP addresses and the SpycerNet names for the Spycer software. The Spycer license information can be monitored. Furthermore, you can manage user accounts, configure the IPMI network settings as well as the Simple Network Monitoring Protocol (SNMP).

4.2 Clusters

When pressing the button **CLUSTER** in the header (see section “The User Interface” on page 1-5), you can switch to the cluster view. The cluster view shows you all clusters that have been configured in an overview. It allows you to access the different nodes belonging to a cluster.

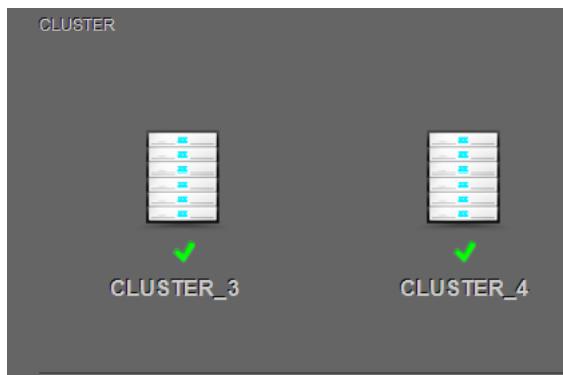


Figure 1-6: SAN Remo cluster view

In this view, you can also add a node to a cluster when selecting the respective node in the section **UNCONFIGURED NODES** below the clusters. You will be directed to the **ADD NODE** view where you can enter the name of the cluster you want to add the node to. If no such cluster exists, it will be created and selectable in the cluster view.



To add a node to a cluster, you will have to log in with administrative user rights.

From the nodes view you can also add unconfigured nodes to a cluster or configure them directly.

Perform the following to add a node to a cluster:

- Select the unconfigured node in the section **UNCONFIGURED NODES**.

You will be directed to the plugin view as in the following figure:



Depending on the user rights you are logged in with, not all plugins may be visible in the user interface.

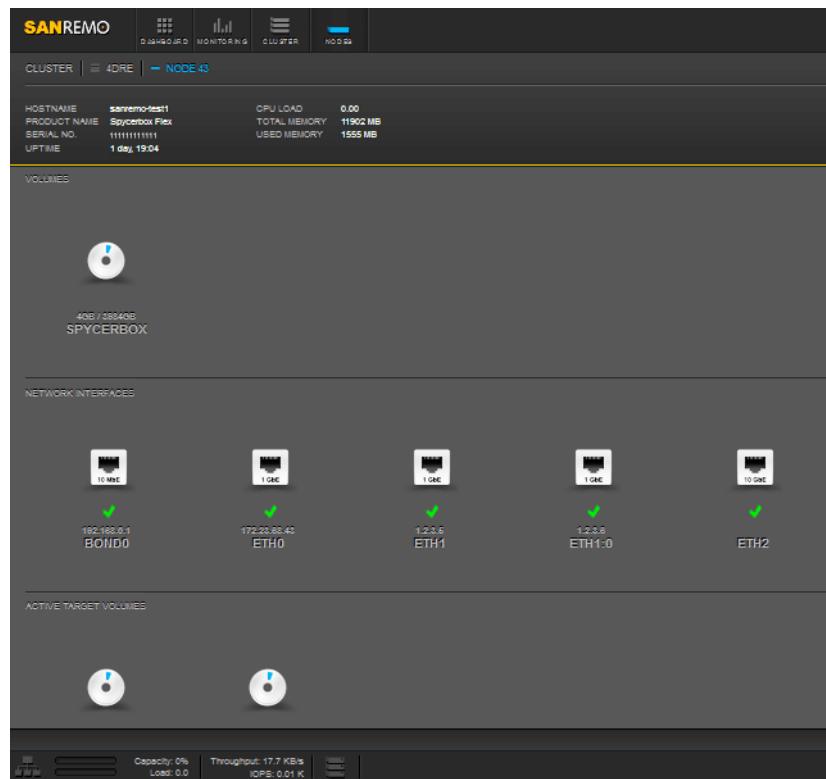


Figure 1-7: SAN Remo plugin view

- Scroll down to the section **HARDWARE** and select the plugin **SYSTEM**.



You can access the **ADD NODE** view directly from the plugin view of the respective node when pressing the edit button as well (see section “Nodes” on page 1-12).

- In the global properties of the **SYSTEM PLUGIN** view select the edit button to the top right.
- Enter a name in the entry field **Cluster Name** and press the button **SUBMIT**.

With this you have added the node to the cluster. If no such cluster exists, it will be created and selectable in the cluster view.



4.3 Nodes

When pressing the button **NODES** in the header (see section “The User Interface” on page 1-5), you can enter the nodes view. This view allows you to access the different nodes (independent of cluster).



SAN Remo provides a user level management including an admin user, an operator and a guest. You need to log in with the respective password to make use of the SAN Remo software in the nodes view. The standard passwords can be found in section “Important Notes” on page 1-2.

You need to log on every node independently.

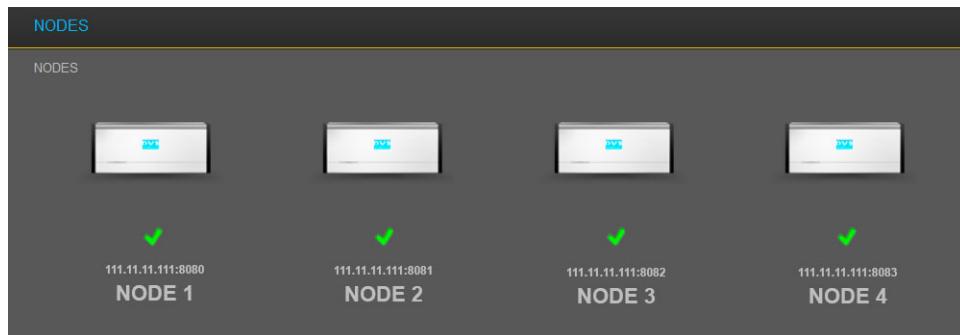


Figure 1-8: SAN Remo nodes view

When selecting a node and logging in with the respective password, you can configure the node settings via the installed plugins. For this you simply have to select the respective plugin icon and make the wanted settings in the settings view.

4.4 Dashboard

When pressing the button **DASHBOARD** in the header (see section “The User Interface” on page 1-5), you see the tachometer showing the read and write operations in GB/s of the respective node.

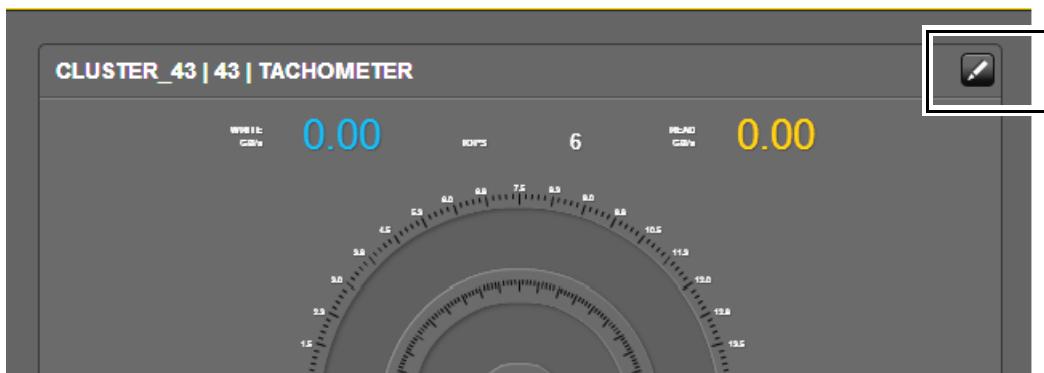


Figure 1-9: SAN Remo dashboard view

The respective node will be indicated to the top left in notation <cluster | node/hostname | value>.

The node to be shown in the tachometer can be selected via the edit button to the top right.

4.5 Monitoring

In the monitoring view you can overview certain properties of different nodes. When pressing the **MONITORING** button in the header (see section “The User Interface” on page 1-5), you will see four graphs indicating e.g. the memory consumption or CPU load. The system information is updated every 2 seconds.

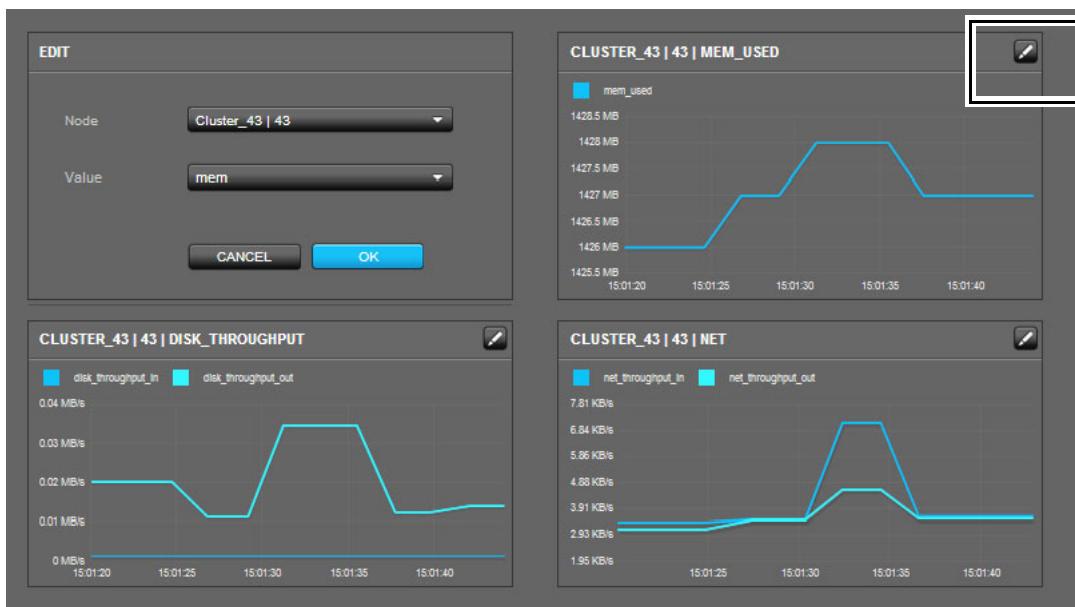


Figure 1-10: SAN Remo monitoring view

Via the edit button to the top right of each graph, the respective node to be viewed and further options can be selected. The following properties can be selected from the drop-down list **Value**:

- **Memory overview** (total memory and used memory on the respective node)
- **Memory used** (used memory on the respective node)
- **Disk IOPS** (read and write accesses to the hard disks of a node)
- **Disk throughput** (read (indicated as **in**) and write (indicated as **out**) accesses indicated separately)
- **System load** (CPU load)
- **Network throughput** (network traffic, in and out separately)

When the wanted options are selected, the graph showing the information will build up in a few seconds. The respective node will be indicat-



ed to the top left of the corresponding graph in notation
<cluster | node/hostname | value>.

Depending on your selection, the values on the y-axis to the left will change. The time shown on the x-axis is the server time of the respective node.

4.6 User Levels

SAN Remo provides a user level management limiting the access or features depending on the respective login name and password. There are 3 user levels available:

- The admin user with all administrative rights to reboot or shut down nodes, add and delete clusters and make further configurations.
- The operator that can change settings but has no rights to reboot or shut down nodes or add and delete user accounts.
- The guest user that can browse and make use of the monitoring features in SAN Remo.



Depending on the user rights you are logged in with, not all plugins may be visible in the user interface.

You have to log in with administrative rights to add a new user.

The default passwords are:

- Admin user login/password
 - admin/admin
- Operator user login/password
 - operator/operator
- Guest user login/password
 - guest/guest

The admin user can add further users to a node directly via the plugin **ACCESS** in section **SOFTWARE** of the plugin view. The access view shows you all configured users in an overview. To configure an existing user, select the user directly. To add a new user you have to click the button showing a plus sign to the top left. You will be directed to the following view:



The screenshot shows a dark-themed configuration dialog box titled "SAN REMO USER - 2". It contains three input fields: "User name" with the value "guest_1", "Password" with a redacted value, and "Role" with the value "guest". Each field has an information icon (i) to its right. At the bottom are two buttons: "CANCEL" and "SUBMIT". A red "X" button is located in the top right corner of the dialog.

Figure 1-11: Adding a new user role

1. Enter the new user name and password in the respective fields.
2. Select a role from the drop-down list **Role** and press the button **SUBMIT** to finish.

The new user will now be shown and selectable in the access view.



To delete a user, you have to select it in the access view and then, in the user configuration view press the red button showing an 'X' to the top right.

4.7 Support

When selecting the button **SUPPORT** to the top right of the user interface you can access all important information in case of questions concerning the SAN Remo software. There you find the documentation as PDF and all necessary contact information.



5 Miscellaneous

5.1 Working with Configuration Files

A plugin may provide raw access to e.g. configuration or license files. SAN Remo offers the possibility to edit e.g. *.config files directly and to make various changes such as e.g. configuring statistical information in the NTP settings.



Service/system damage

Editing configuration files can lead to malfunctions of the plugin, the respective service or the whole system.

Please perform the following steps with great care and only when you are sure that you can carry out all tasks correctly.



Editing the configuration files is a feature intended for administrators with advanced knowledge and if the configuration of features that are not part of the SAN Remo user interface is required.

In the following you see an example of how to edit the configuration file of the StorNext plugin. This file contains the license information for the StorNext file system.



To purchase a new StorNext license, please contact your regional DVS sales representative.

To update the license file in the SAN Remo software, perform the following:

- Open the file with the new license you have received in e.g. a text editor and copy everything by pressing first [Ctrl + A] and then [Ctrl + C].
- Return to the SAN Remo user interface and select the respective node in the **NODES** view (see section “Nodes” on page 1-12).
- Scroll down to the section **SOFTWARE** and select the plugin **STORNEXT**.

You will see the settings area showing all information regarding the StorNext file system and the license.

- Select the edit button to the top right to access the configuration file.
- Click into the entry field and select everything by pressing [Ctrl + A].



- Then delete all selected information in the entry field and paste the content from the new license file from the clipboard by pressing [Ctrl + V].
- Press the button **SUBMIT** to save the new license information to the license file.

With this you have saved the new license information to the file. The new license information should now be visible in the StorNext settings area.

5.2 Gathering Log Files

The log file feature in SAN Remo allows you to create log files from the software which detail the actions performed by and with SAN Remo. You may get asked by the DVS service department to send in these files as well as others in case of problems with the system or the software. To gather log files in the software, perform the following:

- Select the respective node in the cluster view (see section “Clusters” on page 1-10).

You will be directed to the plugin view.

- Scroll down to the section **HARDWARE** and select the plugin **SYSTEM**.



You can access the gather log feature directly from the plugin view of the respective node when pressing the edit button as well (see section “Nodes” on page 1-12).

- In the global properties of the **SYSTEM PLUGIN** view select the edit button to the top right.
- Select **run** from the drop-down list **Gather logs** and press the button **SUBMIT**.

The system will now collect the logs and store them in an archive file that can be accessed via the link in the line **Gather Log URL**. You can download them by clicking the link. When gathering log files the next time, you will access the new log files when clicking the link. The older log files will have been stored in the archive file as well.

