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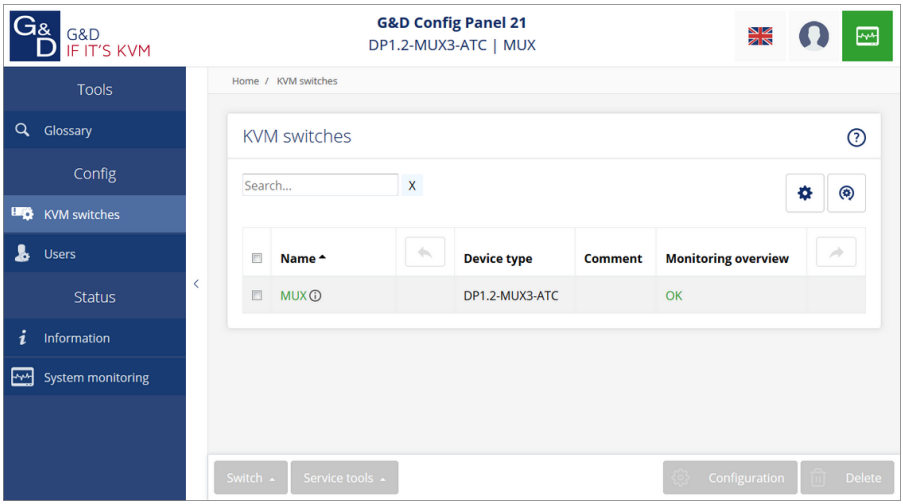

EN

Web Application »Config Panel«

Configuring the KVM switch

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1 Basic functions

The *ConfigPanel* web application provides a graphical user interface to configure the matrix switches of the KVM system. The application can be operated from any supported web browser (see page 6).

ADVICE: The web application can be used in the entire network independently from the locations of the devices and consoles connected to the KVM system.

Thanks to its enhanced functions, the graphical user interface provides the following features for easy operation:

- Clearly arranged user interface
- Monitoring of various system features
- Advanced network functions (netfilter, syslog, …)
- Backup and restore function

System requirements

IMPORTANT: Before the web application can be started via the web browser of a computer, the device from which the web application is loaded must first be connected to the local network (see installation instructions).

If not already done, adjust the network settings described on page 7.

The web application *ConfigPanel* has been successfully tested with these web browsers:

- Apple Safari 13
- Google Chrome 86
- Internet Explorer 11
- Microsoft Edge 85
- Mozilla Firefox 82

Supported operating systems

- Microsoft Windows
- macOS
- Linux
- Android
- iOS

Recommended resolutions

- A minimum resolution of 1280×800 pixels is recommended.
- The web application is optimized to display the content in landscape mode.
- Portrait mode is supported. In this mode, not all contents may be visible.

Initial configuration of the network settings

NOTE: In the defaults, the following settings are pre-selected:

- IP address of *network interface A*: **192.168.0.1**
- IP address of *network interface B*: address obtained using **DHCP**
- global network settings: settings obtained using **DHCP**

To access the web application, the network settings of the device on which the web application is operated need to be configured.

ADVICE: As an alternative to the steps described below, the initial configuration of the network interfaces of the KVM switch can be carried out via on-screen display.

How to configure the network settings before integrating the device into the local network:

1. Use a category 5 (or better) twisted pair cable to connect the network interface of any computer to the device's *Network A* interface.
2. Ensure that the IP address of the computer's network interface is part of the subnet to which the device's IP address belongs to.

   NOTE: Use the IP address *192.168.0.100,* for example.
3. Switch on the device.
4. Start the computer's web browser and enter **192.168.0.1** in the address bar.
5. Configure the network interface(s) and the global network settings as described in the paragraph *Network settings* on page 17 f.

   IMPORTANT: It is not possible to operate both network interfaces within one subnet!
6. Remove the twisted pair cable connection between computer and device.
7. Implement the device in the local network.

Getting started

This chapter introduces you to the basic operation of the web application.

NOTE: For a detailed explanation of the functions and configuration settings, refer to the following chapters of this manual.

Starting the web application

NOTE: Information on the system requirements of the web application can be found on page 2.

How to start the web application

1. Enter the following URL in the address line:

   https://[IP address of the device]

2. Enter the following data in the login mask:

Username:	Enter a username.
Password:	Enter a password for your user account.

IMPORTANT: Change the administrator account's default password.

To do this, log into the web application with the administrator account and then change the password (see page 53).

The *default* access data to the administrator account are:

- **Username:** Admin
- **Password:** see *login* information on the label on the bottom of the device

NOTE: The default *admin* password for devices manufactured before October 2020 is **4658**.

3. Click on **Login**.
4. Click on the **Config Panel 21** icon.

NOTE: As an alternative to the **Config Panel 21** you can open the **EasyControl** (see page 14) tool after login.

Operating the web application

User interface

The user interface of the web application consists of several areas:

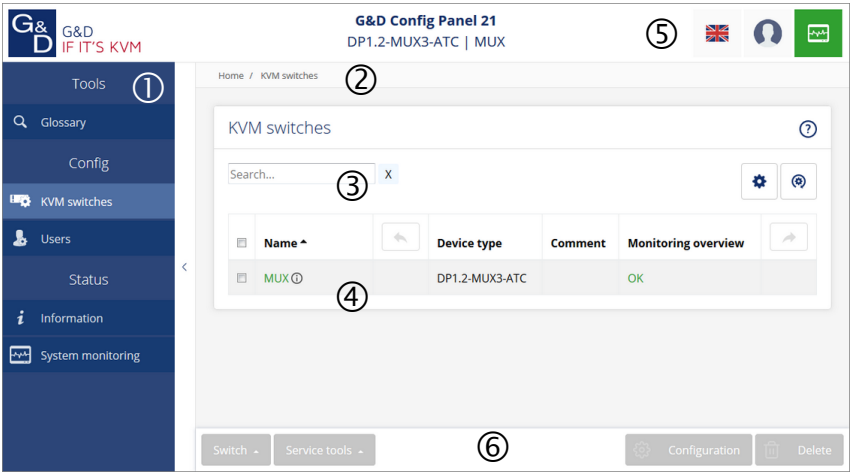

Figure 1: User interface of the web application

The different areas of the user interface serve different tasks. The following table lists the purpose of each area:

Menu ①:	In the menu the different functions of the web application are summarised in various topics.
Breadcrumb navigation ②:	The breadcrumb navigation shows you the path to the currently opened dialog. To quickly return to a higher-level dialog, you can click on it in the breadcrumb navigation.
Filter function ③:	You can use the filter function to narrow down the items displayed in the main view. In the text box, enter part of the name of the element you want to find. Only elements that contain this text in one of the *displayed* columns are displayed in the main view. The names are not case-sensitive during filtering. To delete the filter, click on the **[X]** icon.
Main view ④:	After selecting a topic in the menu, the contents of this topic are displayed here.

Shortcuts ⑤:	**Language selection:** The country flag shows the language currently active in the web application. Click on the country flag to switch between languages (*German/ English*). A submenu opens displaying all supported languages in the form of flags. Switch the language by clicking on the desired flag. **User:** A click on the user icon opens a submenu: ▪ The name of the active user is displayed in the submenu. ▪ Click on *User* to access the user settings of the active user. ▪ Click on *Logout* to exit the active session. **Monitoring status:** This icon shows you at a glance whether all monitoring values are within the normal range (green icon) or if at least one monitoring value is outside the normal range (yellow or red icon). The *Monitoring status* icon always takes the colour of the *most critical* monitoring value If the icon is displayed in yellow or red, you can access the *Active alarms* dialog by clicking on the icon.
Buttons ⑥:	Depending on the dialog shown, different buttons are displayed in this area.

Frequently used buttons

The user interface uses various buttons to perform operations. The following table informs you about the names and functions of the buttons used in many dialog masks:

Configuration:	Show configuration settings of the selected element (device, user, ...)
Service tools:	If you select a device in the main view, you can use the service tools to perform certain tasks (for example, update, backup, show syslog).
Save:	Saving of the entered data. The opened dialog is still displayed.
Cancel:	The data you have entered will be discarded and the dialog will be closed.
Close:	The entered data is cached and the dialog is closed. Only after clicking on **Save** or **Cancel** the data is permanently stored or discarded.

Configuring table columns

You can adapt the table columns to be displayed under **KVM switches** and **Users** to your requirements.

By default, the columns *Name*, *Device type*, *Comment* and *Monitoring overview* are shown under **KVM switches**:

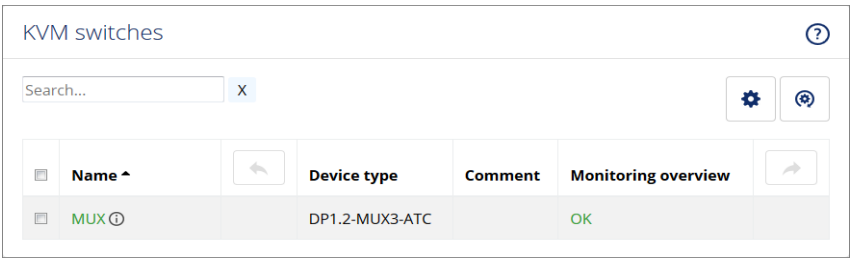

Figure 2: Table columns (selection) of a KVM switch

How to change the columns to be displayed:

NOTE: The **Name** column is *always* shown as the first column of the table.

1. Click on the gears icon ( ) above the table.

Figure 3: Table configuration

2. To add a column, select it from the **Columns** drop-down box and click on **Add column**.
3. To delete a column, click on the red button ( ) below the column header.
4. Click on the green **check mark** ( ) to save your settings or klick on the red **Discard** button ( ).

How to change the column order:

NOTE: The **Name** column is *always* shown as the first column of the table.

1. Click on the gears icon above the table.
2. To move a column to the left, click on the **arrow left** icon ( ) of this column.
3. To move a column to the right, click on the **arrow right** icon ( ) of this column.
4. Click on the green **check mark** ( ) to save your settings or click on the red **Discard** button ( ).

How to reset the table configuration to the default settings

1. Click on the **Table configuration reset** icon ( ) above the table.
2. Confirm the security prompt by clicking on **Yes**.

Selecting the language of the web application

NOTE: The selected language is saved in the user settings of the active user. The next time this user logs on, the previously selected language setting is applied.

How to change the default language of the web application:

1. Click on the **country flag** at the top right.

   A submenu opens displaying all supported languages in the form of flags.

2. Change the language by clicking on the desired **flag**.

Closing the web application

Use the *Close* button to end the active session of the web application.

IMPORTANT: To protect the web application against unauthorised access, always use the *Logout* function after finishing your work with the web application.

How to close the web application:

1. Click on the **user icon** at the top right.
2. Click on **Logout** to exit the active session.

Showing the version number of the web application

How to show the version number of the web application:

1. In the menu, click on **Information**.
2. The **General** tab provides you with information about the *ConfigPanel* version.

Channel switching via EasyControl

You can use the integrated switching tool **EasyControl** to visualise the connected channel and to allow fast switching (also via touch screen device).

All users with the **Config Panel Login** right (see page 59) can use the switching tool.

Starting the switching tool »EasyControl«

How to start the switching tool:

1. Enter the following URL in the address line:

   https://[IP address of the device]

2. Enter the following data in the login mask:

Username:	Enter a username.
Password:	Enter a password for your user account.

3. Click on **Login**.
4. Click on the **EasyControl** icon.

Switching the active KVM channel

The user interface consists of three buttons for switching between the three channels of the KVM switch.

When using the default colour scheme, a green frame indicates the currently active channel.

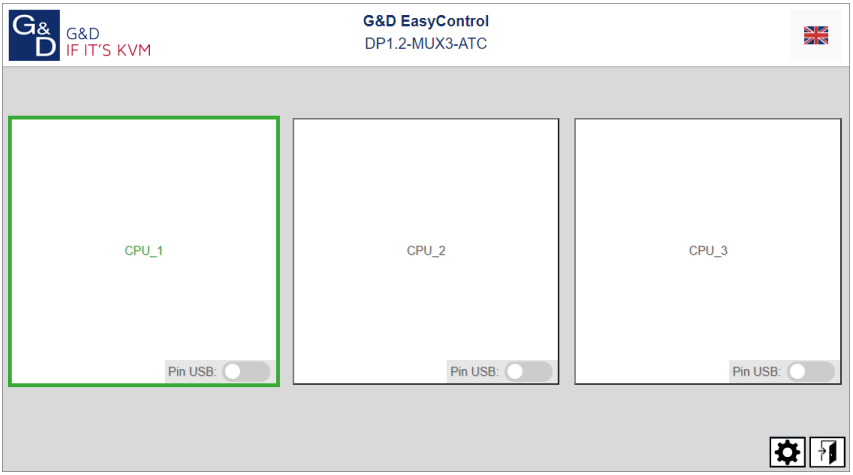

Figure 4: User interface of the »EasyControl« switching tool

How to switch to another KVM channel:

- Click on the button of the channel you want to switch off.

Permanent switching of devices connected to USB 3.0 interfaces

You can use the USB hold function to permanently switch the devices connected to the »USB 3.0 Devices« interface to a particular channel. The permanent switching of these devices still remains even when switching the KVM channel at a later point.

How to switch the devices connected to the USB 3.0 interfaces permanently to a specific channel:

- Move the slider **Pin USB** of the channel whose USB 3.0 interfaces should remain permanently connected to the *right*.

How to cancel permanent switching of devices connected to USB 3.0 interfaces:

- Move the slider **Pin USB** of the channel whose USB 3.0 interfaces are permanently connected to the *left*.

Changing the colour scheme of the switching tool

NOTE: The selected colour scheme is saved in the user settings of the active user. The next time the switching tool is used, the previously selected colour scheme is applied.

How to change the colour scheme of the switching tool:

1. Click on the gears icon at the bottom right.
2. Click on the button of the colour scheme you want to use (**Skin 1**, **Skin 2** or **Skin 3**).
3. Each colour scheme is available in a variant for light and dark working environments. Select the desired variant:

Bright:	Apply variant for bright working environments
Dark:	Apply variant for dark working environments

4. Click the gears icon again to close the settings.

Renaming KVM channels

IMPORTANT: Only users with **Superuser** rights can edit the names of the individual KVM channels in the switching tool.

How to rename the KVM channels:

1. Click on the gears icon (⚙) at the bottom right.
2. Edit the names in the fields **Channel x**.
3. Click on **Save**.
4. Click the gears icon again to close the settings.

Closing the »EasyControl« switching tool

How to close the switching tool:

1. Click on the **Exit** icon (⏻) at the bottom right.

Basic configuration of the web application

Network settings

The device provides two network interfaces (*Network A* and *Network B*). The network interfaces lets you integrate a device into up to two separate networks.

IMPORTANT: Note the separate instructions about the *Initial configuration of the network settings* on page 7.

Configuring the network interfaces

To connect the device to a local network, you need to configure the settings of the network.

NOTE: These are the default settings:

- IP address of *network interface A*: **192.168.0.1**
- IP address of *network interface B*: Obtain address via **DHCP**
- Global network settings: Obtain settings via **DHCP**

How to configure the settings of a network interface:

IMPORTANT: It is not possible to use both network interfaces within the same subnet.

NOTE: The *Link Local* address space 169.254.0.0/16 is reserved for internal communication between devices in accordance with RFC 3330. It is not possible to assign an IP address of this address space.

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Interfaces**.

5. Enter the following values under **Interface A** or **Interface B**:

Operating mode:	Select the operational mode of **Interface A** or **Interface B**: ▪ **Off:** Disable network interface. ▪ **Static:** A static IP address is assigned. ▪ **DHCP:** ▪Obtain IP address from a DHCP server: The drop-down list shows the text **Link aggregation active** if the interface has been added to a network interface group. In this case, configure the network interfaces under »Link aggregation«.
IP address:	Enter the IP address of the interface (only when operating mode *Static* is selected).
Netmask:	Enter the netmask of the network (only when operating mode *Static* is selected).

6. Click on **Save**.

Configuring global network settings

Even in complex networks global network settings ensure that the web application is available from all subnetworks.

How to configure global network settings:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Now go to **Global settings**.
5. Enter the following values:

Operating mode:	Select the operating mode: ▪ **Static:** Use static settings. ▪ **DHCP:** Obtain settings from a DHCP server.
	When selecting the *DHCP* mode, the following settings are applied automatically. It is not possible to enter any vlaues.
Hostname:	Enter the device's hostname.
Domain:	Enter the domain to which the device should belong.
Gateway:	Enter the gateway's IP address.
DNS server 1:	Enter the IP address of the DNS server.
DNS server 2:	Optionally, enter the IP address of another DNS server.

6. Click on **Save**.

Increasing the reliability of network connections by link aggregation

By default, you can use both network interfaces at the same time to acees the web application from two different network segments, for example

To increase reliability, the entwork interfaces can be grouped via *link aggregation*. Within a group, only one interface is active at a time. Another interface only becomes active if the active interface fails.

Two different modes are available for monitoring the interfaces:

- **MII mode:** The carrier status of the network interface is monitored via the *media independent interface* überwacht. In this mode, only the functionality of the network is tested.
- **ARP mode:** Using the *address resolution protocol*, requests are sent to an ARP target on the network. The response from the ARP target confirms both the functionality of the network interface and a proper network connection to the ARP target.

If the ARP target is connected to the network but temporarily offline, the requests cannot be answered. For this reason, you should determine several ARP targets in order to obtain a response from at least one target even if an ARP target fails.

NOTE: It is not possible to combine **MII** and **ARP mode**.

How to configure the settings of grouped network interfaces:

NOTE: The *Link Local* address space 169.254.0.0/16 is reserved for internal communication between devices in accordance with RFC 3330. It is not possible to assign an IP address of this address space.

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Link aggregation**.

5. Enter the following values under **Network**:

Name:	Enter the name of the network interface group.
Operating mode:	Select the operating mode for grouped network interfaces: ▪ **Off:** Disable link aggregation. *Go to »Interfaces« to configure the network interfaces.* ▪ **Static:** A static IP address is assigned. ▪ **DHCP:** Obtain IP address from a DHCP server.
IP address:	Enter the IP address of the interface (only when operating mode *Static* is selected).
Netmask:	Enter the netmask of the network (only when operating mode *Static* is selected).

6. Enter the following values under **Parameter**:

Primary slave:	Select whether data traffic should preferably be transmitted via the interface *Network A* (**Interface A**) or the interface *Network B* (**Interface B**). As soon as the selected interface is available, this interface is used for data traffic. If you select the option **None**, the data traffic is sent via any interface. A switch-over occurs only if the active interface fails.
Link monitoring:	Select whether you want to use the **MII** or the **ARP** mode (see explanation above) to monitor the interface.
MII down delay:	Waiting period in milliseconds before a failed network interface is disabled. The entered value must be a multiple of 100 ms (the MII link monitoring frequency).
MII up delay:	Waiting period in milliseconds before a reset network interface is activated. The entered value must be a multiple of 100 ms (the MII link monitoring frequency).
ARP interval:	Enter the interval (100 to 10,000 milliseconds) after which the system checks for incoming ARP packets of the network interfaces.

ARP validate:	The validation ensures that the ARP packet for a particular network interface has been generated by one of the specified ARP targets. Select whether or which of the incoming ARP packets should be validated: ▪ **None:** ARP packets are not validated (default). ▪ **Active:** Only the ARP packets of the active network interface are validated. ▪ **Backup:** Only the ARP packets of the inactive network interface are validated ▪ **All:** The ARP packets of all network interfaces of the group are validated.
ARP target:	The table contains a list of all configured ARP targets. Use the buttons **New**, **Edit** and **Delete** to manage the ARP targets.

7. Click on **Save**.

Reading out the status of the network interfaces

The current status of both network interfaces can be read out in the web application.

How to detect the status of the network interfaces:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Information**.
4. Go to the paragraph **Link status**.
5. The paragraphs **Interface A** and **Interface B** include the following values:

Link detected:	Connection to the network established (**yes**) or disconnected (**no**).
Auto-negotiation:	Both the transmission speed and the duplex method have been configured automatically (**yes**) or manually by the administrator (**no**).
Speed:	Transmission speed
Duplex:	Duplex mode (**full** or **half**)

6. Click on **Save**.

Creating and administrating netfilter rules

By default, all network computers have access to the web application *ConfigPanel* (open system access).

NOTE: The open system access allows unrestricted connections via ports 80/TCP (HTTP), 443/TCP (HTTPS) and 161/UDP (SNMP).

Once a netfilter rule has been created, open system access is disabled and all incoming data packets are compared with the netfilter rules. The list of netfilter rules is processed in the stored order. As soon as a rule applies, the corresponding action is executed and the following rules are ignored.

Creating new netfilter rules

How to create a new netfilter rule:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Netfilter**.
5. Enter the following values:

Interface:	In the pull-down menu, select on which network interfaces the data packets are to be intercepted and manipulated: ▪ **All** ▪ **Interface A** ▪ **Interface B** ▪ **Link-Aggregation group**
Option:	In the pull-down menu, select how to interpret the sender information of the rule: ▪ **Normal:** The rule applies to data packets whose sender information corresponds to the IP address or MAC address specified in the rule. ▪ **Inverted:** The rule applies to data packets whose sender information does *not* correspond to the IP address or MAC address specified in the rule.

IP address/ Netmask:	Enter the IP address of the data packets or - by using the **Netmask** field - the address space of the IP addresses. **Examples:** ▪ **192.168.150.187:** for IP address 192.168.150.187 ▪ **192.168.150.0/24:** IP addresses of section 192.168.150.x ▪ **192.168.0.0/16:** IP addresses of section 192.168.x.x ▪ **192.0.0.0/8:** IP addresses of section 192.x.x.x ▪ **0.0.0.0/0:** all IP addresses **NOTE:** The *IP address* and/or a *MAC address* can be specified within a rule.
MAC address:	Enter the MAC address to be considered in this filter rule. **NOTE:** The *IP address* and/or a *MAC address* can be specified within a rule.
Filter rule:	▪ **Drop:** Data packets whose sender information matches the IP address or MAC address are not processed. ▪ **Accept:** Data packets whose sender information matches the IP address or MAC address are processed.
Service:	Select a specific service for which this rule is used exclusively, or choose (**All**).

6. Click on **Add** to save the values in a new filter rule.

   The new filter rule is added to the end of the list of existing filter rules.

7. Click on **Save**.

NOTE: The new nefilter rule is not applied to active connections. Restart the device if you want to disconnect the active connections and then apply all the rules..

Editing existing netfilter rules

How to edit an existing netfilter rule:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Netfilter**.

5. In the list of existing netfilter rules, select the rule you want to change.
6. The current rule settings are displayed in the upper part of the dialog. Check and change the following settings.

Interface:	In the pull-down menu, select on which network interfaces the data packets are to be intercepted and manipulated: ▪ **All** ▪ **Interface A** ▪ **Interface B**
Option:	In the pull-down menu, select how to interpret the sender information of the rule: ▪ **Normal:** The rule applies to data packets whose sender information corresponds to the IP address or MAC address specified in the rule. ▪ **Inverted:** The rule applies to data packets whose sender information does *not* correspond to the IP address or MAC address specified in the rule.
IP address/ Netmask::	Enter the IP address of the data packets or - by using the **Netmask** field - the address space of the IP addresses. **Examples:** ▪ **192.168.150.187:** for IP address 192.168.150.187 ▪ **192.168.150.0/24:** IP addresses of section 192.168.150.x ▪ **192.168.0.0/16:** IP addresses of section 192.168.x.x ▪ **192.0.0.0/8:** IP addresses of section 192.x.x.x ▪ **0.0.0.0/0:** all IP addresses **NOTE:** The *IP address* and/or a *MAC address* can be specified within a rule.
MAC address:	Enter the MAC address to be considered in this filter rule. **NOTE:** The *IP address* and/or a *MAC address* can be specified within a rule.
Filter rule:	▪ **Drop:** Data packets whose sender information matches the IP address or MAC address are not processed. ▪ **Accept:** Data packets whose sender information matches the IP address or MAC address are processed.
Service:	Select a specific service for which this rule is used exclusively, or choose (**All**).

7. Click on **Apply** to save your settings.
8. Click on **Save**.

NOTE: The new nefilter rule is not applied to active connections. Restart the device if you want to disconnect the active connections and then apply all the rules..

Deleting existing netfilter rules

How to delete existing netfilter rules:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Netfilter**.
5. In the list of existing netfilter rules, select the rule you want to delete.
6. Click on **Delete**.
7. Confirm the confirmation prompt by clicking on **Yes** or cancel the process by clicking on **No**.
8. Click on **Save**.

Changing the order or priority of existing netfilter rules

The list of netfilter rules is processed in the stored order. As soon as a rule applies, the corresponding action is executed and the following rules are ignored.

IMPORTANT: Pay attention to the order or priority of the individual rules, especially when adding new rules.

How to change the order or priority of existing netfilter rules:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Netfilter**.
5. In the list of existing netfilter rules, select the rule whose order/priority you want to change.
6. Click the button **Arrow up** to increase the priority or the button **Arrow down** to decrease the priority.
7. Click on **Save**.

Creating an SSL certificate

Use the free implementation of the SSL/TLS protocol *OpenSSL* to create an SSL certificate.

The following websites provide detailed information about operating OpenSSL:

- OpenSSL project: **https://www.openssl.org/**
- Win32 OpenSSL: **http://www.slproweb.com/products/Win32OpenSSL.html**

IMPORTANT: Creating an SSL certificate requires the software OpenSSL. If necessary, follow the instructions on the websites mentioned above to install the software.

The instructions on the following pages explain how to create an SSL certificate.

Special features for complex KVM systems

If different G&D devices are to communicate with each other within a KVM system, the identical *Certificate Authority* (see page 27) must be used when creating certificates for these devices.

Alternatively, the identical PEM file (see page 30) can also be used for all devices. Inthis case, all characteristics of the certificates are identical.

Creating a Certificate Authority

A *Certificate Authority* enables the owner to create digital certificates (e. g. for a matrix switch.

How to create a key for the Certificate Authority:

IMPORTANT: The following steps describe how to create keys that are not coded. If necessary, read the OpenSSL manual to learn how to create a coded key.

1. Enter the following command into the command prompt and press **Enter**:

```
openssl genrsa -out ca.key 4096
```

2. OpenSSL creates the key and stores it in a file named *ca.key*.

How to create the Certificate Authority:

1. Enter the following command into the command prompt and press **Enter**:

```
openssl req -new -x509 -days 3650 -key ca.key -out ca.crt
```

2. Now, OpenSSL queries the data to be integrated into the certificate.

   The following table shows the different fields and an exemplary entry:

Field	Example
Country Name (2 letter code)	DE
State or Province Name	NRW
Locality Name (e.g., city)	Siegen
Organization Name (e.g., company)	Guntermann & Drunck GmbH
Organizational Unit Name (e.g., section)	
Common Name (e.g., YOUR name)	Guntermann & Drunck GmbH
Email Address	

IMPORTANT: The device's IP address must not be entered under *Common Name*.

   Enter the data you want to state, and confirm each entry by pressing **Enter**.

3. OpenSSL creates the key and stores it in a file named *ca.crt*.

IMPORTANT: Distribute the certificate *ca.crt* to the web browsers using the web application. The certificate checks the validity and the trust of the certificate stored in the device.

Creating any certificate

How to create a key for the certificate to be created:

> **IMPORTANT:** The following steps describe how to create keys that are not coded. If necessary, read the OpenSSL manual to learn how to create a coded key.

1. Enter the following command into the command prompt and press **Enter**:

```
openssl genrsa -out server.key 4096
```

2. OpenSSL creates the key and stores it in a file named *server.key*.

How to create the certificate request:

1. Enter the following command into the command prompt and press **Enter**:

```
openssl req -new -key server.key -out server.csr
```

2. Now, OpenSSL queries the data to be integrated into the certificate.

   The following table shows the different fields and an exemplary entry:

Field	Example
Country Name (2 letter code)	DE
State or Province Name	NRW
Locality Name (e.g., city)	Siegen
Organization Name (e.g., company)	Guntermann & Drunck GmbH
Organizational Unit Name (e.g., section)	
Common Name (e.g., YOUR name)	192.168.0.10
Email Address	

> **IMPORTANT:** Enter the IP address of the device on which the certificate is to be installed into the row *Common Name*.

   Enter the data you want to state, and confirm each entry by pressing **Enter**.

3. If desired, the *Challenge Password* can be defined. This password is needed if you have lost the secret key and the certificate needs to be recalled.

4. Now, the certificate is created and stored in a file named *server.csr*.

Creating and signing an X509 certificate

1. Enter the following command into the command prompt and press **Enter**:

```
openssl x509 -req -days 3650 -in server.csr -CA ca.crt -CAkey ca.key -set_serial 01 -out server.crt
```

2. OpenSSL creates the certificate and stores it in a file named *server.crt*.

Creating a PEM file

NOTE: The *.pem* file contains the following three components:

- server certificate
- private server key
- certificate of the certification authority

If these three components are available separately, enter them successively to the *Clear text* entry before updating the certificate stored in the device.

1. Enter the following command(s) into the prompt and press **Enter**:

   a. Linux

```
cat server.crt > gdcd.pem
cat server.key >> gdcd.pem
cat ca.crt >> gdcd.pem
```

   b. Windows

```
copy server.crt + server.key + ca.crt gdcd.pem
```

2. The *gdcd.pem* file is created while copying. It contains the created certificate and its key as well as the *Certificate Authority*.

Selecting an SSL certificate

By default, each G&D device with integrated web application stores at least one SSL certificate. The certificate has two functions:

- The connection between web browser and web application can be established via an SSL-secured connection. In this case, the SSL certificate allows the user to authenticate the opposite side.

  If the device's IP address does not match the IP address stored in the certificate, the web browser sends a warning message.

ADVICE: You can import a user certificate so that the device's IP address matches the IP address stored in the certificate.

- The communication between G&D devices within a system is secured via the devices' certificates.

> **IMPORTANT:** Communication between devices is possible only if all devices within a KVM system use certificates of the same *Certificate Authority* (see page 27).

How to select the SSL certificate you want to use:

> **IMPORTANT:** After activating *another* certificate, close the currently active »Config Panel« sessions and start new sessions.

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Certificate**.
5. Select the certificate you want to use:

G&D certificate #1:	This certificate is enabled for *new* devices. **ADVICE:** Older devices do *not* support **certificate #1**. In this case use **certificate #2** or a **user certificate** within the KVM system.
G&D certificate #2:	This certificate is supported by all G&D devices with integrated web application.
User certificate:	Select this option if you want to use a certificate purchased from a certificate authority or if you want to use a user certificate. Now you can import and upload the certificate: 1. Click on **Import certificate from file** and use the file dialog to select the .pem file you want to import. You can also copy the plain text of the server certificate, the server's private key and the certificate of the certificate authority to the text box. 2. Click on **Upload and activate** to store and activate the imported certificate for the device.

3. Click on **Save**.

Firmware update

The firmware of each device of the KVM system can be updated via the web application.

Firmware update of a single device

IMPORTANT: This function only updates the firmware of the device on which the web application was started.

How to execute a firmware update of a single device:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to update.
3. Open the menu **Service tools** and select the entry **Firmware update**.
4. Click on **Supply firmware image files**.

   NOTE: If the firmware file is already available in the internal storage, you can skip this step.

   Select the firmware file on your local disk and click on **Open**.

   NOTE: Multiple selection of firmware files is possible by simultaneously pressing the **Shift** or **Ctrl** key and the left mouse button.

   The firmware file is transferred to the internal storage and can then be selected for the update.
5. Select the firmware files to be used from the internal storage and click on **Continue**.
6. Select the **Intended version** of the devices if you selected more than one firmware files for one device.
7. Move the **Update** slider to the right (green) in the rows of all devices to be updated.
8. Click on **Start update**.

Firmware update of multiple KVM system devices

How to execute a firmware update of multiple KVM system devices:

1. In the menu, click on **System**.
2. Click on **System update**.
3. Select the devices whose firmware you want to update and click **Firmware update**.

4. Click on **Supply firmware image files**.

   NOTE: If the firmware file is already in the internal storage, you can skip this step.

   Select the firmware file on your local disk and click **Open**.

   NOTE: Multiple selection of firmware files is possible by simultaneously pressing the **Shift** or **Ctrl** key and the left mouse button.

   The firmware file is transferred to the internal storage and can then be selected for the update.

5. Select the firmware files to be used from the internal storage and click **Continue**.
6. Select the **Intended version** of the devices if you selected more than one firmware files for one device.
7. Move the **Update** slider to the right (green) in the rows of all devices to be updated.
8. Click on **Start update**.

NOTE: In order to ensure the transfer of updates to the end devices for larger data volumes, the end devices are updated in groups as required.

Restoring the system defaults

With this function, the system defaults of the device on which the web application is operated can be restored.

How to restore the system defaults:

1. In the menu, click on **System**.
2. Click on **System defaults**.
3. Select the scope of the recovery:

Reset all settings:	Reset all settings of the device.
Reset only local network settings:	Reset only local network settings.
Reset only KVM application settings:	Reset all settings except the local network settings.

4. Click on **Set system defaults**.

Restarting the device

This function restarts the device. Before restarting, you will be prompted for confirmation to prevent an accidental restart.

How to restart the device using the web application:

1. In the menu, click on **KVM switches**.
2. Click on the desired device.
3. Open the menu **Service tools** and select the entry **Restart**.
4. Confirm the confirmation prompt with **Yes**.

Network functions of the devices

The different devices within the KVM system (e.g. *KVM extenders* and *KVM matrix switches*) provide *separate* network functions.

The following functions can be configured for each device within the KVM system:

- Authentication against directory services (LDAP, Active Directory, RADIUS, TACACS+)
- Time synchronisation via NTP server
- Forwarding of log messages to syslog servers
- Monitoring and control of computers and network devices via *Simple Network Management Protocol* (see page 45 ff.)

NTP server

The date and time of a device can be set either automatically by time synchronization with an NTP server (*Network Time Protocol*) or manually.

Time sync with an NTP server

How to change the NTP time sync settings:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **NTP server** and enter the following values:

NTP time sync:	By selecting the corresponding entry in the pull-down menu, you can enable or disable the the time synchronization: ▪ **Disabled** ▪ **Enabled**
NTP server 1:	Enter the IP address of a time server.
NTP server 2:	O*ptionally* enter the IP address of a second time server.
Time zone:	Use the pull-down menu to select the time zone of your location.

5. Click on **Save**.

Manual setting of time and date

How to manually set the time and date of the device:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **NTP server**.

> **IMPORTANT:** If necessary, disable the **NTP time sync** option. Otherwise, you might not be able to set time and date manually.

5. Go to the entry **Time** under **Time/date** to enter the current time (*hh:mm:ss*).
6. Go to the entry **Date** under **Time/date** to enter the current time (*DD.MM.YYYY)*.

> **ADVICE:** Click on **Accept local date** to copy the current system date of the computer on which the web application was opened to the *Time* and *Date* fields.

7. Click on **Save**.

Logging syslog messages

The syslog protocol is used to transmit log messages in networks. The log messages are transmitted to a syslog server that logs the log messages of many devices in the computer network.

Among other things, eight different severity codes have been defined to classify the log messages:

- **0:** Emergency
- **1:** Alert
- **2:** Critical
- **3:** Error
- **4:** Warning
- **5:** Note
- **6:** Info
- **7:** Debug

The web application enables you to configure whether the syslog messages are to be locally logged or sent to up to two syslog servers.

Local logging of syslog messages

How to locally log syslog messages:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Syslog** enter the following data under **Syslog local**:

Syslog local:	By selecting the corresponding entry in the pull-down menu, you can enable or disable the local logging of syslog messages: ▪ **Disabled** ▪ **Enabled**
Log level:	In this pull-down menu, select the severity from which a log message is to be logged. The selected severity and all lower severity levels are logged.

If you select the severity *2 - Critical*, messages for this code as well as for the severity levels *1 - Alert* and *0 - Emergency* are logged.

5. Click on **Save**.

Sending syslog messages to a server

How to send syslog messages to a server:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Syslog** and enter the following values under **Syslog server 1** or **Syslog server 2**:

Syslog server:	By selecting the corresponding entry in the pull-down menu, you can enable or disable the sending of syslog messages to a server: ▪ **Disabled** ▪ **Enabled**
Log level:	In this pull-down menu, select the severity level from which a log message is to be logged. The selected severity level and all lower severity levels are logged. If you select the severity *2 - Critical*, messages for this code as well as for the severity levels *1 - Alert* and *0 - Emergency* are logged.
IP address/ DNS name:	Enter the IP address or name of the server to which the syslog messages are to be sent.
Port:	Enter the port - usually 514 - on which the syslog server accepts incoming messages.
Protocol:	Select the protocol - usually UDP - on which the syslog server accepts incoming messages: ▪ **TCP** ▪ **UDP**

5. Click on **Save**.

Viewing and saving local syslog messages

If the function to log the local syslog messages is activated, these syslog messages can be viewed and, if necessary, stored in the information dailog.

How to view and store local syslog messages:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure.
3. Open the menu **Service untility** and select the entry **Syslog**.
4. Click on **Retrieve syslog**.

   The local syslog messages are now retrieved and displayed in the text field.

   ADVICE: Click on **Save syslog** to save the messages in a text file.

5. Click on the red **[X]** to close the window.

User authentication with directory services

In internal corporate networks, user accounts are often managed centrally by a directory service. The device can access such a directory service and authenticate users against the directory service.

NOTE: If the directory service fails to authenticate the user account *Admin* , the user account is authenticated against the database of the device.

The directory service is used exclusively to authenticate a user. Rights are granted by the database of the KVM system. The following paragraphs describe the different scenarios:

- **The user account exists in the directory service and in the KVM system**
  The user can log on with the password stored in the directory service. After a successful login, the rights of the account with the same name are assigned to the user in the KVM system.

  NOTE: The password with which the user has successfully logged on is transferred to the database of the KVM system.

- **The user account exists in the directory service, but not in the KVM system**
  A user who has been successfully authenticated against the directory service but does not have an account of the same name in the KVM system's database will be granted the rights of a *RemoteAuth* user.
  If required, change the rights of this particular user account to set the rights for users without a user account.

  ADVICE: Deactivate the *RemoteAuth* user to prevent users without user accounts to log on to the KVM system.

- **The user account exists in the KVM system, but not in the directory service**
  If the directory service is available, it reports that the user account does not exist. Access to the KVM system is denied to the user.
  If the server is not available but the fallback mechanism (see page 39) is activated, the user can log on with the password stored in the KVM system.

  IMPORTANT: In order to prevent the logon of a user locked or deactivated in the directory service when the connection to the directory service fails, please observe the following security rules:
  - If a user account is deactivated or deleted in the directory service, this action must also be carried out in the user database of the KVM system!
  - Activate the fallback mechanism only in exceptional cases.

How to configure the authentication of user accounts:

NOTE: If no directory service is used, the user accounts are managed by the device.

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **Authentication**.

5. Enter the following values under **Authentication server**:

Auth. Server: Select the **Local** option if the user administration is to be carried out by the KVM system.

If you want to use a certain directory service, select the corresponding entry from the pull-down menu:

- **LDAP**
- **Active Directory**
- **Radius**
- **TACACS+**

ADVICE: After selecting a directory service, enter the settings of the directory service server in the *Server Settings* section of the dialog box.

Fallback: Activate this option if you want to use the local user administration of the KVM system if the directory service is temporarily unavailable.

IMPORTANT: In order to prevent the logon of a user locked or deactivated in the directory service when the connection to the directory service fails, please observe the following security rules:

- If a user account is deactivated or deleted in the directory service, this action must also be carried out in the user database of the KVM system!
- Activate the fallback mechanism only in exceptional cases.

6. Click on **Save**.

Monitoring functions

Under **KVM switches** and **System monitoring** you can view the monitoring values of any devices connected to the KVM system.

The following exemplary figure shows the monitoring values *Status*, *Main power* and *Temperature* of a device:

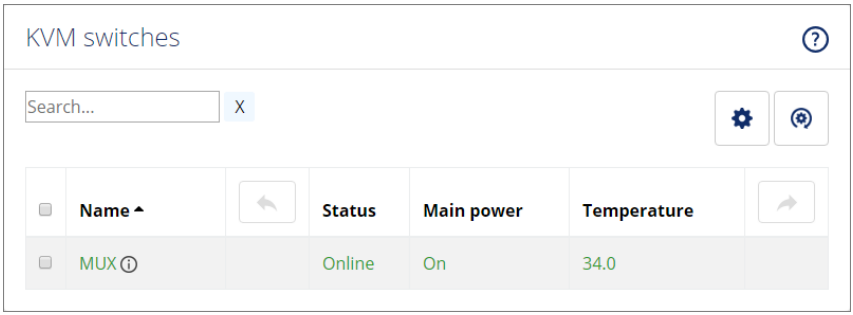

Figure 5: Detailed view of an exemplary monitoring table

The values configured for the table view (see *Configuring table columns* on page 11) are listed in the table.

You can see immediately from the colour whether the status is correct (green) or critical (red). The text displayed in the column also provides information about the current status.

Viewing all monitoring values

You can see the list of all monitoring values under **KVM switches**.

How to show a list of all monitoring values:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Monitoring**.

   The displayed table contains a list of all available monitoring values.
4. Click on **Save**.

Enabling/disabling monitoring values

You can switch each monitoring value on and off *separately* or you can switch all monitoring values on or off *together*.

Deactivated monitoring values are *not* displayed in the web application.

IMPORTANT: The web application does *not* give any warnings about deactivated monitoring values and does also *not* send any SNMP traps for these values.

How to enable/disable an *individual* monitoring value:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Monitoring**.
4. Turn the slider in the column **Enabled** of the desired monitoring value to the right (enabled) or to the left (disabled).
5. Click on **Save**.

How to enable/disable *all* monitoring values:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Monitoring**.
4. Mark or unmark the **Enabled** checkbox in the column header to switch all values on or off.
5. Click on **Save**.

Advanced features for managing critical devices

The **Monitoring status** icon (see *User interface* on page 9) shows you at a glance whether all monitoring values are within the normal range (green icon) or if at least one monitoring value is outside the normal range (yellow or red icon).

The *Monitoring status* icon always takes the colour of the *most critical* monitoring value

Displaying the list of critical monitoring values

If the **Monitoring status** icon is displayed in yellow or red, you can access the **Active alarms** dialog by clicking on the icon.

The *Active alarms* dialog shows any critical values.

Acknowledging the alarm of a critical device

Many alarm messages require immediate action by the administrator. Other alarms (for example, the failure of the redundant power supply), on the other hand, indicate possibly uncritical circumstances.

In such a case, you can acknowledge the alarm message of a value. The value is thus downgraded from **Alarm** (red) to **Warning** (yellow).

How to acknowledge the monitoring message of a device:

1. Click on the red **Monitoring status** icon at the top right.
2. Select the alarm you want to acknowledge.
3. Click on **Acknowledge**.

Monitoring devices via SNMP

The *Simple Network Management Protocol* (SNMP) is used to monitor and control computers and network devices.

Practical use of the SNMP protocol

A *Network Management System* (NMS) is used to monitor and control computers and network devices. The system queries and collects data from the *agents* of the monitored devices.

> **NOTE:** An *agent* is a program that runs on the monitored device and determines its status. The determined data is transmitted to the *Network Management System* via SNMP.

If an *agent* detects a serious event on the device, it can automatically send a *trap* packet to the *Network Management System*. This ensures that the administrator is informed about the event at short notice.

Configuring an SNMP agent

How to configure an SNMP agent:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure and then click on **Configuration**.
3. Click on the tab **Network**.
4. Go to the paragraph **SNMP agent**.
5. Enter the following values under *Global*:

Status:	Select the particular entry to either switch the SNMP agent off (**Off**) or on (**Enabled**).
Protocol:	Select the protocol (**TCP** or **UDP**) – usually UDP – to be used to transmit the SNMP packets.
Port:	Define the port – usually 161 – on which the *incoming* SNMP packets are to be accepted.
SysContact:	Enter the admin's contact data (e.g. direct dial or e-mail address).
SysName:	Enter the device name.
SysLocation:	Enter the location of the device.

6. If you want to process packets of protocol version **SNMPv2c,** enter the data listed on the following page in the section with the same name.

Access:	Activate read access (**View**), write access (**Full**) or deny access (**No**) via the *SNMPv2c* protocol.
Source:	Enter the IP address or the address space of the addresses of incoming SNMP packets. **Examples:** ▪ **192.168.150.187:** Only IP address 192.168.150.187 ▪ **192.168.150.0/24:** IP addresses of space 192.168.150.x ▪ **192.168.0.0/16:** IP addresses of space 192.168.x.x ▪ **192.0.0.0/8:** IP addresses of space 192.x.x.x
Read-only community:	Enter the name of the *Community* which has also been selected in the *Network Management System*.

IMPORTANT: The password (*Community*) of the packages of protocol version *SNMPv2c* is transmitted unencrypted and can therefore be easily tapped.

If necessary, use the protocol version *SNMPv3* (see below) and a high *security level* to ensure secure data transmission.

7. If you want to process packets of protocol version **SNMPv3c,** enter the data in the section with the same name:

Access:	Activate read access (**View**), write access (**Full**) or deny access (**No**) via the *SNMPv3c* protocol.
User:	Enter the username for the communication with the *Network Management System*.
Authentication protocol:	Select the authentication protocol (**MD5** or **SHA**) which has been activated in the *Network Management System*.
Authentication passphrase:	Enter the authentication passphrase for the communication with the *Network Management System*.
Security level:	Select one of the following options: ▪ **NoAuthNoPriv:** user authentication and *Privacy* protocol deactivated ▪ **AuthNoPriv:** user authentication activated, *Privacy* protocol deactivated ▪ **AuthPriv:** user authentication and *Privacy* protocol activated
Privacy protocol:	Select the privacy protocol (**DES** or **AES**) which has been activated in the *Network Management System*.
Privacy passphrase:	Enter the privacy passphrase for secure communication with the *Network Management System*.
Engine ID method:	Select how the **SnmpEngineID** should be assigned: ▪ **Random:** The *SnmpEngineID* is re-assigned with every restart of the device. ▪ **Fix:** The *SnmpEngineID* is the same as the MAC address of the device's network interface. ▪ **User:** The string entered under *Engine ID* is used as *SnmpEngineID*.
Engine ID:	When using the *Engine ID method* **User**, enter the string that is used as *Engine ID*.

8. Click on **Save**.

Configuring SNMP traps

How to add a new trap or edit an existing trap:

1. In the menu, click on **KVM switches**.
2. Click on the tab **Network**.
3. Go to the paragraph **SNMP trap**.
4. Click on **Add** or on **Edit**.
5. Enter the followng values under **Global**:

Server:	Enter the IP address of the *Network Management Server*.
Protocol:	Select the protocol (**TCP** or **UDP**) – usually UDP – to be used to transmit the SNMP packets.
Port:	Enter the port – usually 162 – on which *outgoing* SNMP packets are transmitted.
Retries:	Enter the number of retries to send an *SNMP Inform*.
	NOTE: Inputs are only possible if the *Inform* option is selected in the *Notification type* field.
Timeout:	Enter the timeout (in seconds) after which an *SNMP Inform* will be resent if no confirmation is received.
	NOTE: Inputs are only possible if the *Inform* option is selected in the field *Notification type*.
Log level:	Select the severity of an event from which an SNMP trap is to be sent. The selected severity and all lower severity levels are logged.
	NOTE: If you select the severity *2 - Critical*, SNMP traps will be sent for events of this severity level as well as for events of the severity levels *1 - Alert* and *0 - Emergency*.
Version:	Select if the traps are to be created and sent according to the *SNMPv2c* (**v2c**) or *SNMPv3* (**v3**) protocol.
Notification type:	Select if events are sent as *Trap* or *Inform* packet.
	NOTE: *Inform* packets require a confirmation of the *Network Management System*. If this confirmation is not available, transmission is repeated.

6. If you selected protocol version **SNMPv2c** in the last step, enter the name of the *Community*, which was also selected in the *Network Management System*.

> **IMPORTANT:** The password (*Community*) of the packages of protocol version *SNMPv2c* is transmitted unencrypted and can therefore be easily tapped.
>
> If necessary, use the protocol version *SNMPv3* (see below) and a high *security level* to ensure secure data transmission.

7. If you selected protocol version **SNMPv3** in step 5, enter the following data in the section with the same name:

Username:	Enter the username for the communication with the *Network Management System*.
Authentication protocol:	Select the authentication protocol (**MD5** or **SHA**) which has been activated in the *Network Management System*.
Authentication passphrase:	Enter the authentication passphrase for secure communication with the *Network Management System*.
Security level:	Select one of the following options: ▪ **NoAuthNoPriv:** user authentication and *Privacy* protocol deactivated ▪ **AuthNoPriv:** user authentication activated, *Privacy* protocol deactivated ▪ **AuthPriv:** user authentication and *Privacy* protocol activated
Privacy protocol:	Select the privacy protocol (**DES** or **AES**) which has been activated in the *Network Management System*.
Privacy passphrase:	Enter the privacy passphrase for secure communication with the *Network Management System*.
Engine ID:	Enter the *Engine ID* of the trap receiver.

8. Click on **Save**.

How to delete an existing trap:

1. In the menu, click on **KVM switches**.
2. Click on the tab **Network**.
3. Go to the paragraph **SNMP trap**.
4. In the row of the receiver you want to delete, click on **Delete**.
5. Click on **Save**.

Users and groups

Efficient rights administration

The web application administrates up to 256 user accounts as well as the same amount of user groups. Any user within the system can be a member of up to 20 groups.

User accounts and user groups can be provided with different rights to operate the system.

ADVICE: Rights administration can be carried out almost completely through user groups. Therefore, user groups and the assigned rights have to be planned and implemented beforehand.

This way, user rights can be changed quickly and efficiently.

The effective right

The effective right determines the right for a particular operation.

IMPORTANT: The effective right is the maximum right, which consists of the user account's individual right and the rights of the assigned group(s).

EXAMPLE: The user *JDoe* is member of the groups *Office* and *TargetConfig*.

The following table shows the user account rights, the rights of the assigned groups and the resulting effective right:

Right	User *JDoe*	Group *Office*	Group *TargetConfig*	Effective right
Target config	No	No	**Yes**	**Yes**
Change own password	No	**Yes**	No	**Yes**
Target access	**Full**	View	No	**Full**

The settings of the *Target config* and *Change own password* rights result from the rights assigned to the user groups. The *Target access* right which, in this case, enables full access, is given directly in the user account.

The dialogue windows of the web application additionally display the effective right for every setting.

ADVICE: Click on the **Details** button to get a list of the groups and rights assigned to the user account.

Efficient user group administration

User groups let you create a shared right profile for multiple users with identical rights. Furthermore, any user accounts included in the member list can be grouped and therefore no longer have to be individually configured. This facilitates the rights administration within the matrix system.

If the rights administration takes place within user groups, the user profile only stores general data and user-related settings (key combinations, language settings, …).

When initiating the matrix system, it is recommended to create different groups for users with different rights (e. g. »*Office*« and »*IT*«) and assign the respective user accounts to these groups.

EXAMPLE: Create more groups if you want to divide the user rights even further. If, for example, you want to provide some users of the »*Office*« group with the *multi-access* right, you can create a user group for these users:

- Create a user group (e. g., »*Office_MultiAccess*«) with identical settings for the »*Office*« group. The *multi-access* right is set to *full*. Assign the respective user accounts to this group.
- Create a user group (e. g., »*MultiAccess*«) and set only the *multi-access* right to *Yes*. In addition to the »*Office*« group, also assign the respective user accounts to this group.

In both cases, the user is provided with the *full* effective right for *multi-access*.

ADVICE: The user profile lets you provide extended rights to a group member.

Administrating user accounts

User accounts let you define individual rights for every user. The personal profile also provides the possibility to define several user-related settings.

IMPORTANT: The administrator and any user assigned with the *Superuser* right are permitted to create and delete user accounts and edit rights and user-related settings.

Creating a new user account

The web application manages up to 256 user accounts. Each user account has individual login data, rights and user-specific settings for the KVM system.

How to create a new user account:

1. In the menu, click on **User**.
2. Click on **Add user**.
3. Enter the following values in the dialog box:

Name:	Enter the username.
Password:	Enter the user account password.
Confirm password:	Repeat the password.
Clear text:	If necessary, mark this entry to view and check both passwords.
Full name:	If desired, enter the user's full name.
Comment:	If desired, enter a comment regarding the user account.
Enabled:	Mark this checkbox to activate the user account.

NOTE: If the user account is deactivated, the user is not able to access the KVM system.

4. Click on **Save**.

IMPORTANT: After the user account has been created, it does not have any rights within the KVM system.

Renaming a user account

How to change the name of a user account:

1. In the menu, click on **Users**.
2. Click on the user account you want to configure and then click on **Configuration**.
3. Enter the username under **Name**.

4. *Optional:* Enter the user's full name under **Full name**
5. Click on **Save**.

Changing the password of a user account

How to change the password of a user account:

1. In the menu, click on **Users**.
2. Click on the user account you want to configure and then click on **Configuration**.
3. Change the following values in the dialog box:

New password:	Enter the new password.
Confirm password:	Repeat the new password.
Clear text:	Mark this entry to view and check both entered passwords.

4. Click on **Save**.

Changing the user account rights

Any user account can be assigned with different rights.

The following table lists the different user rights. Further information on the rights can be found on the indicated pages.

Name	Right	Page
Change own password	Change own password	page 60
Superuser right	Unrestricted access to the configuration of the system	page 58
Config Panel Login	Login to the *ConfigPanel* web application	page 59
EasyControl Login	Access to *EasyControl* tool	page 59

Changing a user account's group membership

NOTE: Any user within the system can be a member of up to 20 user groups.

How to change a user account's group membership:

1. In the menu, click on **Users**.
2. Click on the user account you want to configure and then click on **Configuration**.
3. Click on the **Membership** tab.

4. In the **Members** column, turn the slider of the group to which you want to add the user to the right (enabled).

   ADVICE: If necessary, use the *Search* field to limit the number of user groups to be displayed in the selection window.

5. In the **Members** column, turn the slider of the group from which the user is to be removed to the left in the (disabled).

   ADVICE: If necessary, use the *Search* field to limit the number of user groups to be displayed in the selection window.

6. Click on **Save**.

Enabling or disabling a user account

IMPORTANT: If a user account is disabled, the user has no access to the KVM system.

How to enable or disable a user account:

1. In the menu, click on **User**.
2. Click on the user account you want to configure and then click on **Configuration**.
3. Mark the check box **Enabled** to activate the user account.

   If you want to block access to the system with this user account, unmark the checkbox.

4. Click on **Save**.

Deleting a user account

How to delete a user account:

1. In the menu, click on **User**.
2. Click on the user account you want to delete and then click on **Delete**.
3. Confirm the confirmation prompt by clicking on **Yes** or cancel the process by clicking on **No**.

Administrating user groups

User groups enable the user to create a common rights profile for several users with the same rights and to add user accounts as members of this group.

This way, the rights of these user accounts do not have to be individually configured, which facilitates the rights administration within the KVM system.

NOTE: The administrator and any user with the *Superuser* right are authorised to create and delete user groups as well as edit the rights and the member list.

Creating a new user group

The user can create up to 256 user groups within the system.

How to create a new user group:

1. In the menu, click on **User groups**.
2. Click on **Add user group**.
3. Enter the following values in the dialog box:

Name:	Enter the username.
Comment:	If desired, enter a comment regarding the user account.
Enabled:	Mark this checkbox to activate the user account.

NOTE: If the user group is disabled, the group rights do *not* apply to the assigned members.

4. Click on **Save**.

IMPORTANT: Directly after the new user group has been created, it contains no rights within the system

Renaming a user group

How to rename a user group:

1. In the menu, click on **User groups**.
2. Click on the user group you want to configure and then click on **Configuration**.
3. Enter the group name under **Name**.
4. Click on **Save**.

Changing the user group rights

The various user groups can be assigned with different rights.

The following table lists the different user rights. Further information about the rights is given on the indicated pages.

Name	Right	Page
Change own password	Change own password	page 60
Superuser right	Unrestricted access to the configuration of the system	page 58
Config Panel Login	Login to the *ConfigPanel* web application	page 59
EasyControl Login	Access to *EasyControl* tool	page 59

Administrating user group members

How to administrate user group members:

1. In the menu, click on **User groups**.
2. Click on the user group you want to configure and then click on **Configuration**.
3. Click on the **Members** tab.
4. In the **Members** column, click on the slider of the users you want to add to the group (enabled).

> **ADVICE:** If necessary, use the *Search* field to limit the number of users to be displayed in the selection window.

5. In the **Members** column, click on the slider of the users you want to delete from the group (disabled).

   ADVICE: If necessary, use the *Search* field to limit the number of users to be displayed in the selection window.

6. Click on **Save**.

(De)activating a user group

How to (de)activate a user group:

1. In the menu, click on **User groups**.
2. Click on the user group you want to configure and then click on **Configuration**.
3. Activate the **Enabled** checkbox to activate the user group.

   If you want to lock the access to the KVM system for members of this user group, deactivate the checkbox.

4. Click on **Save**.

Deleting a user group

How to delete a user group:

1. In the menu, click on **User groups**.
2. Click on the user group you want to delete and then click on **Delete**.
3. Confirm the confirmation prompt by clicking **Yes** or cancel the process by clicking **No**.

System rights

Rights for unrestricted access to the system (Superuser)

The *Superuser* right allows a user unrestricted access to the configuration of the KVM system.

NOTE: The information about the user's previously assigned rights remains stored when the *Superuser* right is activated and is reactivated when the right is revoked.

How to assign a user account with unrestricted access to the system:

1. In the menu, click on **Users** or **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.

3. Click on the tab **System rights**.
4. Under **Superuser right**, select between the following options:

Yes:	Allow full access to the KVM system and the connected devices
No:	Deny full access to the KVM system and the connected devices

5. Click on **Save**.

Changing the login right to the web application

How to change the login right to the web application:

1. In the menu, click on **Users** or **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.
3. Click on the tab **System rights.**
4. Under **Config Panel Login**, select between the following options:

Yes:	Allow access to web application
No:	Deny access to web application

5. Click on **Save**.

Rights to access the EasyControl tool

How to change the rights to access the *EasyControl* tool:

1. In the menu, click on **Users** or **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.
3. Click on the tab **System rights.**
4. Under **EasyControl Login**, select between the following options:

Yes:	Allow access to the *EasyControl* tool
No:	Deny access to the *EasyControl* tool

5. Click on **Save**.

Rights to change your own password

How to change the right to change your own password:

1. In the menu, click on **Users** or **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.
3. Click on the tab **System rights**.
4. Under **Change own password**, select between the following options:

Yes:	Allow users to change their own password
No:	Deny users the right to change their own password

5. Click on **Save**.

Advanced functions of the KVM system

Identifying a device by activating the Identification LED

Some devices provide an *Identification* LED on the front panel.

Use the web application to switch the device LEDs on or off in order to identify the devices in a rack, for example.

How to (de)activate the *Identification* LED of a device:

1. In the menu, click on **KVM switches**.
2. Click on the device you want to configure.
3. Open the menu **Service tools** and select the entry **Ident LED**.
4. Click on **LED on** or **LED off**.
5. Click on the red **[X]** to close the window.

Saving and restoring the data of the KVM system

The backup function lets you save your configurations. You can reset your configurations with the restore function.

How to save the configuration of the KVM system:

1. In the menu, click on **System**.
2. Click on **Backup & restore**.
3. Click the **Backup** tab.
4. *Optional:* Enter a **Password** to secure the backup file or a **Comment**.
5. Select the scope of data you want to back up: You can back up either the **network settings** and/or the **Application settings**.
6. Click **Backup**.

How to restore the configuration of the KVM system:

1. In the menu, click on **System**.
2. Click on **Backup & restore**.
3. Click on **Restore** tab.
4. Click **Select file** and open a previously created backup file.
5. Use the information given under **Creation date** and **Comment** to check if you selected the right backup file.
6. Select the scope of data you want to restore: You can restore either the **network settings** and/or the **Application settings**.

   NOTE: If one of these options cannot be selected, the data for this option was not stored.

7. Click **Restore**.

2 KVM switches

In the web application's *KVM Switches* menu, you can configure various settings of the KVM switch and view the device's status information.

Basic configuration of KVM switches

Changing the name of a KVM switch

How to change the name of a KVM switch

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Enter the desired name of the KVM switch in the **Name** field of the **Device** section.
4. Click on **Save**.

Changing the comment of a KVM switch

The list field of the web application displays the name of a KVM switch as well as the comment entered about the device.

> **ADVICE:** For example, use the comment field to note the location of the KVM switch.

How to change the comment of a KVM switch:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Enter any comment in the **Comment** field of the **Device** section.
4. Click on **Save**.

Deleting a KVM switch from the KVM system

If the system is not able to find a KVM switch that has previously been part of the KVM system, it assumes that the device is switched off.

If a KVM switch has been permanently removed from the system, you can manually delete it from the KVM switches list.

NOTE: Only KVM switches that have been *switched off* can be deleted.

How to delete a KVM switch that is switched off or disconnected from the system:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to delete and then click on **Delete**.
3. Confirm the confirmation prompt by clicking on **Yes** or cancel the process by clicking on **No**.

Configuration settings of KVM switches

Device configuration

Select operating mode (»Open Access« or Standard)

By default, the **Open access** operating mode is activated on the KVM switch. In this mode, user login to the OSD is disabled. Thus, everyone working on this console uses the same settings.

IMPORTANT: In *Open Access* mode, the KVM switch is not protected by a password.

You can also use the web application to change the operating mode of the KVM switch. In the default mode, users need to log on to the OSD. All users use their individual access data and settings.

How to change the operation mode of the KVM switch:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.

3. In the **Operating mode** field of the **Configuration** section, select between the following options:

Open access console:	In the **Open Access** mode, the user login is disabled in the OSD. All users of this console use the same settings.
Standard:	In the **standard** operating mode, the user login is enabled in the OSD. All users use their individual settings.

4. Click on **Save**.

Changing the hotkey to open the OSD

You can define a hotkey to open the on-screen display (OSD) for operating and configuring the system.

NOTE: By default, the hotkey to open the OSD is **Ctrl**.

The shortcut consists of at least one hotkey modifier key and an additional hotkey that you can freely select within a given frame.

You can change both the hotkey modifier key **Ctrl** and the hotkey **Num** of the shortcut.

How to change the hotkey to open the OSD:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. In the **Hotkey modifier** field of the **Configuration** section, select *at least* one of the listed modifier keys by marking the corresponding check box:

- **Ctrl**
- **Alt**
- **Alt Gr**
- **Win**
- **Shift**

4. In the **Hotkey** field, select one of the following options:

Num:	*Num* key
Pause:	*Pause* key
Insert:	*Insert* key
Delete	*Delete* key
Pos1:	*Pos 1* key
End:	*End* key
Page up:	*Page*↑ key
Page down:	*Page*↓ key
Space key:	Space key

5. Click on **Save**.

Starting the on-screen display by pressing a key twice

As an alternative to opening the on-screen display (OSD) with the key combination **Hotkey**+**Num** or **Double hotkey**+**Num**, you can open the OSD by pressing a specific key twice (see below).

How to enable/disable opening the on-screen display by pressing a key twice:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.

3. In the **OSD via double keypress** field of the **Configuration** section, select between the following options:

Off:	Open OSD by pressing a key twice disabled. *(Default)*
Ctrl:	Open OSD by pressing the **Ctrl** key twice.
Alt:	Open OSD by pressing the **Alt** key twice.
Alt Gr:	Open OSD by pressing the **Alt Gr** key twice.
Win:	Open OSD by pressing the **Win** key twice.
Shift:	Open OSD by pressing the **Space** key twice.
Print:	Open OSD by pressing the **Print** key twice.
Arrow left	Open OSD by pressing the **Arrow left** key twice.
Arrow right	Open OSD by pressing the **Arrow right** key twice.
Arrow up	Open OSD by pressing the **Arrow up** key twice.
Arrow down	Open OSD by pressing the **Arrow down** key twice.

4. Click on **Save**.

Changing the select keys

By default, the select keys **1** to **3** are active for switching between the computers connected to the KVM switch.

EXAMPLE: The default setting for switching to computer 2 is **Hotkey+2** (default: **Alt+2**).

If one of the shortcuts resulting from the select key set collides with a shortcut used in an installed application program, you can change both the select key modifier and the select keys.

How to change the select keys:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Edit select keys** in the **Configuration** section.

4. In the **Select key modifier** field, select *at least* one of the listed modifier keys by marking the corresponding check box:

▪ **Ctrl**
▪ **Alt**
▪ **Alt Gr**
▪ **Win**
▪ **Shift**

5. In the **Valid select keys** field, select one of the options listed:

Only numbers:	*Only numerical keys* are valid as select keys
Only letters:	*Only alphabetic keys* are valid as select keys
Numbers and letters:	*Numerical and alphabetic keys* are valid as select keys

IMPORTANT: Both the selected valid keys and the select key modifier are *no longer* provided as shortcuts to the operating system and the applications on the target computer.

6. In the channel table, click in the **Select keys** column of a channel and then enter the desired character(s).
7. Assign the select keys of the other channels one by one as described in step 6.
8. Click on **Save**.

Enabling/disabling switching

Switching to a specific channel can take place either via the *buttons* on the device, configured *select keys*, the *IP-Control-API*, SNMP or the web application *ConfigPanel*.

If required, you can restrict the options for switching between channels.

How to enable/disable the options for switching between channels:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.

3. In the **Disable switching** field of the **Configuration** section, select the switching options you want to block by checking the appropriate checkbox(es).

Buttons:	Switching via buttons on the front panel of the device disabled
IP-API & EasyControl:	Switching via IP-API and *EasyControl* disabled
Serial:	Switching via a serial device disabled
Hotkeys:	Switching via select keys and step keys disabled
Select key:	Switching via select keys disabled
Step/Scan Up:	Switching via step key **Up** disabled
Step/Scan Down:	Switching via step key **Down** disabled

4. Click on **Save**.

Reinitialising USB input devices

After connecting a USB keyboard or mouse to the console module, the input devices are initialised and can be used immediately. Some USB input devices require a reinitialisation of the USB connection.

How to enable/disable the reinitialisation of USB devices:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. In the **Scancode set** field of the **Configuration** section, select between the following options:

Off:	The connected USB input devices do not need to be reinitialised.
All devices:	All USB devices are regularly reinitialised.
Only faulty devices:	The status of USB devices is monitored. If the communication with a USB devices is interrupted, the device is reinitialised (recommended setting).

4. Click on **Save**.

Changing the scancode sets of a PS/2 keyboard

When a key on the PS/2 keyboard is pressed, the keyboard processor sends a data packet called scancode. There are two common scancode sets (sets 2 and 3) that contain different scancodes.

By default, the KVM switch interprets all entries of a PS/2 keyboard with scancode set 2.

ADVICE: If the pipe ("|") cannot be entered or the arrow keys of the keyboard do not work as expected, it is recommended to switch to scan code set 3.

How to change the setting of the scancode set:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. In the **Scancode set** field of the **Configuration** section, select between the following options:

Set 2:	Activates scancode set 2 for PS/2 keyboard inputs
Set 3:	Activates scancode set 3 for PS/2 keyboard inputs

4. Click on **Save**.
5. Restart the KVM switch.

NOTE: After a restart, the keyboard is initialised and the selected scancode set is applied.

Enabling/disabling DDC/CI support

The KVM switch has been prepared to support monitors with **DDC/CI** function. After the function has been activated, the **DDC/CI** information is transparently forwarded to the monitor to support as many monitors as possible.

NOTE: Support cannot be guaranteed for all monitors.

How to configure the DDC/CI transmission:

NOTE: The **DDC/CI** transmission is set separately for each video channel of the KVM switch. For multichannel devices, the following option can be set separately for each video channel.

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. In the **DDC/CI monitor** field of the **Configuration** section, select between the following options:

Disabled:	The transmission of DDC/CI signals is disabled. (*default*)
CPU > Monitor:	The transmission of DDC/CI signals is exclusively carried out from computer to monitor.
Bidirectional:	The transmission of DDC/CI signals is bidirectional.

4. Click on **Save**.

General OSD configuration

Enabling/disabling the use of the on-screen display

Use this function to select whether users of the KVM switch are allowed to access and use the on-screen display (OSD).

How to enable/disable the use of the on-screen display:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. In the **Block OSD menu** field of the **OSD configuration** section, select between the following options:

No:	On-screen display available (*default*)
Yes:	On-screen display blocked

4. Click on **Save**.

Setting the OSD resolution

In the default settings of the KVM switch, the OSD is displayed on the desktop monitor with a resolution of 1024 × 768 pixels if the monitor supports this resolution. If the monitor does not support this resolution, it uses a resolution of 640 × 480 pixels.

You can also choose a fixed OSD resolution (see table below).

How to adjust the OSD resolution:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.

3. In the **OSD resolution** field of the **OSD configuration** section, select between the following options:

Auto:	If supported by the monitor, the OSD is displayed with a resolution of 1024 × 768 pixels. If the monitor does not support this resolution, it uses a resolution of 640 × 480 pixels (*default*).
640 × 480/60:	Display OSD with a resolution of 640 × 480 pixels
720 × 400/70:	Display OSD with a resolution of 720 × 400 pixels
1024 × 768/60:	Display OSD with a resolution of 1024 × 768 pixels

4. Click on **Save**.

Selecting the keyboard layout for inputs on the on-screen display

If the characters displayed on the screen are different from the characters entered on the keyboard of the workstation, the selected keyboard layout is not correct.

In this case, find out the keyboard layout of the connected keyboard and then select it in the settings of the KVM switch.

How to select the keyboard layout of the workstation keyboard:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.

3. In the **OSD keyboard layout** field of the **OSD configuration** section, select between the following options:

German:	German (Germany)
English (USA):	English (USA)
English (United Kingdom):	English (United Kingdom)
French:	French (France)
Spanish:	Spanish (Spain)
Lat. American	Spanish (Latin America)
Portuguese:	Portuguese (Portugal)

4. Click on **Save**.

Personal settings (Personal Profile)

Displaying an information overlay

By default, a temporary (5 seconds) information overlay is displayed when switching to a channel. The overlay on the workstation monitor informs you about the names of the channel and the KVM switch and contains further information if available.

You can also set the information overlay to permanent or switch it off.

ADVICE: If the temporary information overlay is active, you can show the information at any time by pressing the key combination **Ctrl+Caps Lock key**.

How to change the setting of the information overlay:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Show OSD info** field, select between the following options:

5 seconds:	Temporary information display (*default*)
Perm:	Permanent information display
Off:	Deactivate information display

5. Click on **Save**.

Adjusting the transparency of the on-screen display

By default, the on-screen display (OSD) is displayed with medium transparency on top of the screen contents. The part of the screen that is covered by the OSD shines through the OSD.

You can adjust or disable the transparency level.

How to adjust the transparency level of the on-screen display:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **OSD transparency** field, select between the following options:

High:	High transparency of screen contents
Average:	Average transparency of the screen contents (*default*)
Low:	Low transparency of screen contents
Off:	On-screen display covers screen contents

5. Click on **Save**.

Changing the colour of the information overlay

By default, information overlays (e. g. when switching to a channel) are displayed in light green. The colour of the overlay can be adjusted.

How to change the colour of the information overlay:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.

4. In the **OSD info color** field, select between the following options:

Light green:	Display information overlay in light green (*default*)
Black, Dark red, Green, Dark yellow, Dark blue, Violet, Dark turquoise, Silver, Yellow, Blue, Magenta, Light turquoise, White	Display information overlays in the selected colour.

5. Click on **Save**.

Enable/disable an automatic OSD timeout

In the default settings of the KVM switch, the OSD is displayed until the user switches to another channel or closes the OSD.

You can also specify a time period after which the OSD is closed automatically.

How to enable/disable an automatic OSD timeout:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Timeout OSD session** field, enter a time span between **5** and **99** seconds.

> **NOTE:** Entering the value **0** disables the automatic timeout.

5. Click on **Save**.

Changing the default menu mode

By default, the OSD displays the *Select* menu for selecting a channel If desired, you can specify in your personal profile that the script menu is displayed after opening the OSD.

ADVICE: Regardless of the default setting, you can switch between the Select and Script menus at any time by pressing **Ctrl+X**.

How to change the standard menu mode:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Default OSD menu** field, select between the following options:

Select:	The *Select* menu is displayed after you open the OSD (*default*).
Script:	The *Script* menu is displayed after you open the OSD.

5. Click on **Save**.

Switching threshold for changing the menu mode by mouse

In addition to changing the menu mode by pressing **Ctrl+X**, you can also change the menu mode using the mouse.

ADVICE: After activating the change of the menu mode by mouse, you can switch between both modes by moving the mouse left and right in the Select and Script menus.

IMPORTANT: Changing the menu mode by mouse is *not* possible if the *Select* and/or *Script* menu has no corresponding entry.

How to enable or disable the switching threshold and/or adjust its sensitivity:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.

4. In the **Select /scenario menu mouse switching** field, select between the following options:

Off:	Mouse switching of the OSD menu mode deactivated (*default*)
Sensitivity 1:	lowest sensitivity level for mouse switching of the OSD menu mode
Sensitivity 10:	maximum sensitivity level for mouse switching of the OSD menu mode
Sensitivity 2-8:	further sensitivity levels for mouse switching of the OSD menu mode

5. Click on **Save**.

Configuring the scantime of the Autoscan or Autoskip function

By default, each automatic connection is held for 10 seconds before disconnecting and switching to the next channel.

Select a time span between 1 and 99 seconds to define how long you want to access a channel.

How to change the scantime:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Scantime** field, enter a time span between 1 and 99 seconds.
5. Click on **Save**.

Selecting step keys

After activating the *Stepscan* mode, you can press a key to switch to the next or previous computer.

The **Up** and **Down** keys are set as default keys for this. You can also select a different set of keys to use for switching between computers.

How to select the keys to use with the step scan function:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Stepscan keys** field, select between the following options:

Up|Down:	Use the **Up** key to switch one channel up and the **Down** key to switch one channel down.
PageUp|PageDown:	Use the **PageUp** key to switch one channel up and the **PageDown** key to switch one channel down.
NumUp|NumDown:	Use the **NumUp** key to switch one channel up and the **NumDown** key to switch one channel down.
NumPageUp|NumPageDown:	Use the **NumPageUp** key to switch one channel up and the **NumPageDown** key to switch one channel down.
Num+|Num-:	Use the **Num+** key to switch one channel up and the **Num-** key to switch one channel down.
F10|F9:	Use the **F10** key to switch one channel up and the **F9** key to switch one channel down.
0|9:	Use the **0** key to switch one channel up and the **9** key to switch one channel down.
Num 0|Num 9:	Use the **Num 0** key to switch one channel up and the **Num 9** key to switch one channel down.
K|I:	Use the **K** key to switch one channel up and the **I** key to switch one channel down.

5. Click on **Save**.

Auto-switching to the last channel

In the personal profile, enable the **Remember last CPU** function to remember the channel to which a user was last connected before they logged out. The next time the user logs in, they will automatically be connected to this channel.

NOTE: Switching the KVM switch off is treated as a logout.

IMPORTANT: When actavting the **Remember last CPU** function, a user‘s configured default target or script is ignored.

How to enable or disable auto-switching to the last channel:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Remember last CPU** field, select between the following options:

Off:	After login, the configured default channel is accessed. If no default channel is configured, the Select menu opens (*default*).
On:	After login, users are connected to the channel they last accessed before logging out of the system.

5. Click on **Save**.

Configuring default actions after a user logon

After a user logs in, the OSD usually opens on the console screen.

The configuration setting **Default execution** lets you define a channel that is automatically accessed or a script that is automatically executed after a user logs in.

NOTE: This new function replaces the **After power-up switch to** function of firmware-version 1.0.000.

How to select a channel to switch to immediately after a user login:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Default execution** field, select the option **Default CPU**.
5. Scroll down to the **Default CPU** area.
6. Click on the slider of the desired default CPU in the column **Default CPU** (enabled).

> **ADVICE:** If necessary, use the *Search* field to limit the number of channels to be displayed in the selection window.

7. Click on **Save**.

How to select a default script or a script group that is automatically executed after a user logon:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Default execution** field, select the option **Default script/script group**.
5. Scroll down to **Default script/script group**.
6. Click on the slider of the desired default script/script group in the column **Default script/script group**.

> **ADVICE:** If necessary, use the *Search* field to limit the number of scripts and groups to be displayed in the selection window.

7. Click on **Save**.

How to disable the configured default action:

1. In the menu, click on **Users**.
2. Click on the user account you want to edit and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Personal Profile**.
4. In the **Default execution** field, select the option **None**.
5. Click on **Save**.

Channel configuration

Changing the channel name

How to change the channel name:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Enter the channel name in the **Name** field of the **Channel** section.
6. Click on **Save**.

Changing the comment of a KVM switch

How to change the comment of a channel:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Enter any comment in the **Comment** field of the **Channel** section.
6. Click on **Save**.

Enabling/disabling a channel

You can connect up to three computers to the KVM switch. The workstation set up on the device can switch to these channels.

If less than three computers are connected to the KVM switch, you can disable the unused channels. This prevents unnecessary switching and the evaluation of monitoring data.

How to enable/disable a channel:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Mark the **Channel activated** check box of the **Channel** section to allow switching to this channel, or clear this check box to prohibit switching to this channel.
6. Click on **Save**.

Enabling/disabling the keyboard signal

By default, the signals of keyboard and mouse connected to the workstation are transmitted to the computer of the connected channel.

In the settings of the KVM switch, you can enable or disable the transmission of the keyboard signal for each channel.

How to enable/disable the transmission of the keyboard signal of a channel:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.

5. In the **Keyboard enabled** field of the desired channel, select between the following options:

Enabled:	Keyboard signals are transmitted to the computer of this channel (*default*).
Disabled:	Keyboard signals are *not* transmitted to the computer of this channel.

6. Click on **Save**.

Support for multimedia and other special keys

Several manufacturers have added additional keys to standard keyboards.

Thus, some USB keyboards are equipped with special multimedia keys that enable the convenient operation of the computer's special multimedia functions. For example, the *Apple Mac mini*'s keyboard is equipped with a button to open the DVD drive.

How to enable/disable the support for multimedia and other special keys

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. In the **USB keymode** of the desired channel, select between the following options:

PC Standard:	Standard keymode
PC Multimedia:	Support for special multimedia keys
Apple A1243:	Keymode for Apple computers
LK463:	LK463-compatible keyboard

6. Click on **Save**.

Setting up failover switching

The **Failover switching** function automatically switches to the configured *failover* channel when the status of the active channel changes from *online* to *offline*.

The OSD message **Failover switching** informs you about the automatic switching to the failover channel.

By default, this function is disabled. You can configure the function separately for each channel by specifying the desired failover channel.

ADVICE: You can set up a *failover chain*, for example, by setting the failover channel to the next channel.

If the failover channel is also offline when failover switching occurs, the system switches to the failover channel of the failover channel (etc).

If no other channel is online, failover switching stops.

How to configure a failover channel for a KVM channel:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. In the **USB keymode** of the desired channel, select between the following options:

None:	No auto-switching (*default*)
[Channel no.]:	Auto-switching to the selected channel

6. Click on **Save**.

Video channel configuration

NOTE: If you have purchased a multichannel version of the KVM switch, the configuration settings described in this section are available separately for each multichannel channel.

Changing the name of a video channel

How to change the name of a video channel

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Enter the channel name in the **Video channel** field of the **Video channel** section.
6. Click on **Save**.

Changing the comment of a video channel

How to change the comment of a video channel:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on the tab **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Enter any comment in the **Comment** field of the **Video channel** section.
6. Click on **Save**.

Reading the EDID profile of a monitor

The EDID information (*Extended Display Identification Data*) of a monitor informs the graphics card of the connected computer about various technical features of the device. The KVM switch usually forwards this information unaltered via Enhanced-DDC (*Enhanced Display Data Channel*) to the computer.

The EDID profile of a monitor can also be read in and transmitted to one (or more) of the connected computers via the KVM switch.

NOTE: An EDID profile can be read in either directly from a monitor connected to the KVM switch or from a bin file.

How to read in the EDID profile of a connected monitor:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Click on **Create new EDID profile** in the *Video channel* section.
6. Click in the **Read out from monitor** list box and select the monitor whose EDID information you want to read in.

   NOTE: The **Name** and **Comment** fields of the profile are automatically prefilled and the contents of the EDID information are displayed.
7. Click on **Ok**.
8. If desired, change the information in the fields **Name** and/or **Comment**.
9. Click on **Save**.

How to import the EDID profile of a monitor from a file:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Click on **Create new EDID profile** in the paragraph *Video channel*.
6. Click on **Select file**.
7. Select the bin file to be imported from the file dialog and click on **Open**.

> **NOTE:** The **Name** and **Comment** fields of the profile are automatically prefilled and the contents of the EDID information are displayed.

8. If desired, change the information in the fields **Name** and/or **Comment**.
9. Click on **Save**.

Defining the EDID profile of a channel

How to select the EDID profile:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. In the **EDID profile** field of the *Video channel* section, select between the following options:

[Auto]:	Automatic handling of EDID data (default)
Profile name:	Selection of an EDID profile previously imported by a user

6. Click on **Save**.

Exporting the EDID profile of a monitor

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.
5. Select the **EDID profile** you want to export.
6. Click on **Export EDID**.
7. If required, change the name of the file you want to export.
8. Click on **Save**.

Use of the Freeze mode

If the cable connection between the computer and the KVM switch is interrupted during operation, no image is displayed on the workstation monitor (*default*).

Activate the Freeze mode if you want to display the last image received at the KVM switch until the connection is restored in case of a disconnection.

> **ADVICE:** In order to clearly signal the disconnection, the last received image is optionally displayed with a coloured frame and/or the time since the disconnection.

How to configure the setting of the Freeze mode:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Channels**.
4. Click on the channel you want to configure and then click on **Configuration**.

5. In the **Freeze mode** field of the **Video channel** section, select between the following options:

Off:	Show no image if the connection is lost (default).
On|OSD timer + frame	Show the last image after disconnection. The disconnection is indicated by the display of the time since the disconnection and a coloured frame.
On|OSD timer	Show the last image after disconnection. The disconnection is indicated by the display of the time since the disconnection.
On|Frame	Show the last image after disconnection. The disconnection is indicated by a coloured frame.

6. Click on **Save**.

Advanced features for KVM switches

Switching between channels

Switching to one of the computers connected to the KVM switch can also be carried out via the web application instead of the buttons on the device and the configured select keys.

Keyboard and mouse inputs as well as the data stream of any USB devices connected to the KVM switch and the incoming audio signal are immediately routed to the active computer after switching.

How to switch the signal transmission to a computer:

1. In the menu, click on **KVM switches**.
2. Select the KVM switch you want to switch.
3. Click on **Switch**.
4. Click on the channel you want to access (e. g. **CPU_3**).

> **NOTE:** The **OK** mark behind the channel name indicates the active channel. A separate window informs you if the switching cannot be executed.

Configuring monitoring values

In the *Monitoring* section, you can define values to be monitored and check the status of these values.

Selecting the values to be monitored

By default, the KVM system monitors a variety of different values of the KVM switch.

If required, you can limit the evaluation and monitoring of properties.

How to manage the values to be monitored:

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Monitoring**.

4. Enable or disable individual monitoring values by sliding the slider to the *left* (**off**) or to the *right* (**on**).

> **NOTE:** In order to enable or disable *all* values you can use the check box in the header of the **Enabled** column.

5. Click on **Save**.

Viewing the status information of a KVM switch

Using the configuration menu of a KVM switch, you can open a window displaying different KVM switch status information.

How to display the status information of a KVM switch

1. In the menu, click on **KVM switches**.
2. Click on the KVM switch you want to configure and then click on **Configuration**.
3. Click on **Information**.
4. The following information is displayed in the dialog box that opens now:

KVM switch	
Name:	Name of the KVM switch
Device ID:	Physical ID of the KVM switch
Status:	Current status (**online** or **offline**) of the KVM switch
Class:	Device class of the KVM switch

Hardware information	
Firmware name:	Firmware name
Firmware rev.:	Firmware version
Hardware rev.:	Hardware revision
IP address A:	IP address of *Network A* interface
IP address B:	IP address of *Network B* interface
MAC A:	MAC address of *Network A* interface
MAC B:	MAC address of *Network B* interface
Serial number	Serial number of the KVM switch

Active features
This area lists all activated additional functions.

Link status	
Link detected:	Connection to the network established (**Yes**) or interrupted (**No**).
Auto-negotiation:	Transmission speed and duplex mode have been configured automatically (**Yes**) or manually by the administrator (**No**).
Speed:	Transmission speed
Duplex	Duplex mode (**Full** or **Half**)

NOTE: In addition, the *monitoring* information of the device is displayed.

5. Click on **Close** to close the window.

Scripting function

The scripting function lets you create, manage and execute scripts.

A script is an XML document that contains one or more commands carried out by the matrix switch.

EXEMPLARY SCRIPT TO SWITCHING TO A CHANNEL

```
<?xml version="1.0" encoding="utf-8"?>
<root>
    <connectmux>3</connectmux>
</root>
```

The structure of a valid XML document and any possible commands as well as their syntax are described in the chapter *Controlling the KVM switch via XML* of the separate *Installation and Operation Guide*.

The scripts stored in the matrix system can be executed via the on-screen display of the KVM switch.

Configuring scripts

Step 1: Select a device

- Select the KVM switch for which you want to configure scripts.

Step 2: Select the option »Scripts«

- Select the option **Scripts** to create, edit or merge individual scripts to control the matrix switch.

Steps 3 and 4: Create, edit, merge or delete scripts

NOTE: Script commands are stored in an XML document. Each XML document can contain one or more commands.

The structure of a valid XML document as well as possible commands and their syntax are described in the chapter *Controlling the KVM switch via XML* in the separate *Installation and Operation Guide*.

IMPORTANT: Only users with assigned **Superuser** rights are able to create, edit and delete scripts in the web application.

How to create a new script:

1. Click on **Add script**.
2. Enter the following data into the dialogue box:

Name:	Enter the desired script name.
Enabled:	Enable or disable the execution *and* display of the script in the Script menu.
Execution delay:	After calling the script, you can delay its execution by up to 999 seconds. Enter the desired delay time in seconds.
Comment:	If desired, enter a comment about the script.
XML code:	Enter the XML code using script commands.

3. Click on **Save**.

How to edit an existing script:

1. Select the script you want to edit and click on **Edit**.
2. Enter or update the following data into the dialogue box:

Name:	Enter the desired script name.
Enabled:	Enable or disable the execution *and* display of the script in the Script menu.
Execution delay:	After calling the script, you can delay its execution by up to 999 seconds. Enter the desired delay time in seconds.
Comment:	If desired, enter a comment about the script.
XML code:	Enter the XML code using script commands.

3. Click on **Save**.

How to delete an existing script:

1. Select the script you want to delete and click on **Delete**.
2. Confirm the security prompt by clicking on **Yes**.

How to merge existing scripts into a new script:

1. Select the existing scripts you want to merge.

> **ADVICE:** Press the **Ctrl** key to select several scripts from the list.

2. Click on **Merge**.
3. Enter the following data:

Name:	Enter the desired script name.
Comment:	If desired, enter a comment about the script.

4. If desired, you can change the order of the scripts you want to merge. Mark a script and click on (*arrow up*) or (*arrow down*). The selected script is moved either up or down.

> **NOTE:** The XML documents of the selected scripts are copied to a new script in the selected order. In the new script, you can edit the XML document (created from the individual scripts) as required.

5. Click on **Save**.

Step 5: Define owner

A script can be executed by users who are the *owner* of the script or are assigned with rights to execute the script.

> **NOTE:** Only scripts without owners can be added to script groups.

- Activate the **Owner** slider in the line of the user to be entered as the owner of the script.

Step 6: Script availability

If a script is not assigned to a console, the script is always displayed if the user is authorized to execute the script.

- Activate the **Available** slider in the row of the consoles on which to show the script.

NOTE: Use the **Available** option in the column header to move the sliders of all console modules.

NOTE: Use the slider in the **EasyControl** line to control the availability of the script in the **EasyControl** tool.

ADVICE: Do not activate any slider if you want the script to be available on all console modules.

Step 7: Target device

In the script configuration, you can specify whether the script is to be executed locally on the KVM switch selected in step 1 *or* on one or two *other* KVM devices.

NOTE: Prerequisite for the execution on up to two other KVM devices is that the additional **IP-Control-API** function is activated on the target device(s).

- Enable the **Execute on this device** slider *or* enter the IP address and port of one or two other KVM devices.
- Activate the **Ignore device response** slider if the device response should not be evaluated.

Configuring script groups

Step 1: Select a device

- Select the KVM switch for which you want to configure script groups.

Step 2: Select the option »Scripts groups«

- Select the option **Scripts groups** to organise several existing scripts in a script group.

Steps 3 and 4: Creating, editing or deleting script groups

How to create a new script group:

1. Click on **Add script group**.
2. Enter the following data into the dialogue box:

Name:	Enter the desired name of the script group.
Enabled:	Enable or disable the execution *and* display of the script group in the script menu.
Execution delay:	After calling the script group, you can delay its execution by up to 999 seconds. Enter the desired delay time in seconds.
Comment:	If desired, enter a comment about the script group.

3. Click on **Save**.

How to edit an existing script group:

1. Select the script group you want to edit and click on **Edit**.
2. Enter or update the following data into the dialogue box:

Name:	Enter the desired name of the script group.
Enabled:	Enable or disable the execution *and* display of the script group in the script menu.
Execution delay:	After calling the script group, you can delay its execution by up to 999 seconds. Enter the desired delay time in seconds.
Comment:	If desired, enter a comment about the script group.

3. Click on **Save**.

How to delete an existing script group:

1. Select the script group you want to delete and click on **Delete**.
2. Confirm the security prompt by clicking on **Yes**.

Step 5: Adding scripts to or deleting them from a group

The dialog lists all scripts of the matrix switch to which no owner has been assigned.

- Click on the **Add** slider on the row of the scripts you want to add to the group.
- Disable the **Add** slider on the row of the scripts you want to delete from the group.

NOTE: Use the **Add** option in the column header to move the sliders of all scripts.

Step 6: Changing the order within a script group

- If desired, you can change the order of the scripts within a group. Mark a script and click on (*arrow up*) or (*arrow down*). The selected script is moved either up or down.

Step 7: Script group availability

- Click on the **Available** slider in the row of the consoles on which to show the script group.

NOTE: Use the **Available** option in the column header to move the sliders of all console modules.

ADVICE: Do not activate any slider if you want the script to be available on all console modules.

Assigning rights to execute scripts and script groups

NOTE: Users always have the right to execute and delete their own scripts (**Owner**). This option does not require any additional rights.

Executing a script that is not assigned to your own user account requires the right to execute this script. The same applies for script groups.

The **right to execute scripts** can be assigned in the settings of a user account. You can also manage this right via user groups (see *Efficient rights administration* on page 50).

Defining the right to execute a script

How to change the right to execute a particular script:

1. In the men, click on **Users** or on **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Script rights**.
4. In the list field of the **Script rights** paragraph, select the desired script from the list on the left-hand side.

> **ADVICE:** If necessary, use the *Search* box to limit the scripts that appear in the selection window.

5. In the **Execution** field on the right-hand side, select one of the following options:

Yes:	Allow the execution of the script.
No:	Deny the execution of the script.

6. Click on **Save**.

Defining the right to execute a script group

How to change the right to execute a particular script group:

1. In the men, click on **Users** or on **User groups**.
2. Click on the user account or the user group you want to configure and then click on **Configuration**.
3. Click on the tab **KVM switch systems** and then go to **Script group rights**.
4. In the list field of the **Script group rights** paragraph, select the desired script group from the list on the left-hand side.

> **ADVICE:** If necessary, use the *Search* box to limit the script groups that appear in the selection window.

5. Select the desired script group from the list on the left-hand side.
6. Under **Execution**, select one of the following options:

Yes:	Allows the execution of the script group.
No:	Denies the execution of the script group.

7. Click on **Save**.

Assigning and configuring script keys

After the script key modifier(s) and a script key set have been adjusted and a script key set has been activated in the user account, a script can be executed by pressing key combinations on the console keyboard.

Using script keys at user modules

Opening the on-screen display is not necessary for using script keys to execute scripts. Hence, scripts can be executed much faster if you know the script keys required for the execution.

How to use script keys to execute a script via OSD:

1. Press the script key modifier key(s) defined in the matrix system and the script key assigned to the script.

   EXAMPLE:

   - Script key modifier keys: **Win**+**Shift**
   - Script key for script: **1**

   Press and hold the keys **Win**+**Shift** while pressing script key **1**. The scrip is executed when releasing the keys.

Administrating script key sets

The KVM switch lets you create 20 global script key sets or ten additional, individual script key sets for each user.

Within script key sets you can define individual script keys to execute individual scrips.

NOTE: Global script key sets are available to all users of the KVM switch.

You can administrate script key sets comfortably with a wizard. Click on the menu **Advanced features** and select the entry **Script keys**. Click on **Configuration** to start the wizard.

The following paragraphs briefly summarise the wizard's configuration options.

Step 1: Select a device

- Select the KVM switch on which you want to store the configuration of the script key set.
- Select at least one of the modifiers listed in the **Script key modifier** field by marking the respective entry:

▪ **Ctrl**	▪ **Win**
▪ **Alt**	▪ **Shift**
▪ **Alt Gr**	

- In the **Valid keys** field, select one of the following options:

Only numbers:	*only numerical keys* are interpreted as script keys when pressed in combination with the script key modifier
Only characters:	*only alphabetic keys* are interpreted as script keys when pressed in combination with the script key modifier
Numbers and characters:	*alphabetical and numerical keys* are interpreted as script keys when pressed in combination with the script key modifier

Step 2: Select a user

- Select a user account for which the configured script keys are available.
  When selecting the entry **Available for all (global)**, you create a global script key set that will be available to all users.

Step 3: Select key sets

- Select the script key set you want to configure.
  Click on the buttons **Add**, **Edit** or **Delete** to add a new script key set or to edit or delete an existing set.
- Click on the slider **Use script key set directly** if you want to activate the set for the user selected in step 2.

IMPORTANT: If you have selected the table entry **Available for all (global)** in step 2, clicking on the slider activates the set for all users.

NOTE: Only by assigning a script key set to a user account, the script keys defined in the set are accepted as inputs and execute the assigned script.

Step 4: Configure a script key set

- Enter the desired key combinations to execute scripts or script groups.

NOTES

NOTES

The manual is constantly updated and available on our website.

https://gdsys.de/A9200148

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