kvm-tec
USER MANUAL

Switching Manager Software

FLEXline, KVM Eco Smart	☐	☐	☑
media4Kconnect, ScalableLine	☐	☐	☑
Simultanes Downscaling	☐	☐	☑

Switching Manager & API

TABLE OF CONTENT

1. Introduction **4**

1.1 System Requirements 5

2. Installation **6**

2.1 Installation - 1. Variant 6

2.2 Installation - 2. Variant 9

2.2.1 Configure the multicast address pool 10

2.2.2 Installing the Switching Manager Web Backend 12

2.3 Connecting the PC to the KVM Extender Network 14

3. Log in **15**

3.1 LOG IN 15

3.2 Set the network interface 15

4. Basic commands **16**

4.1 Connect 16

4.2 Disconnect 17

4.3 Sharing 18

5. Functions **19**

5.1 Connect 22

5.2 Extender Information 23

5.3 Features 24

5.3.1 FEATURES -Mouse glide & switch 24

5.3.2 FEATURES - Multihead Groups 27

5.3.3 FEATURES - Scalable Line 29

TABLE OF CONTENT

5.3.4 FEATURES - Scenarios 29

5.4 User Settings and User Roles 31

5.4.1 User 32

5.4.2 GROUP ADMIN 32

5.4.3 UNIVERSAL ADMIN 33

5.5 Active Directory 34

5.6. General Settings 36

5.7. Licenses 38

5.7.1 Switching Manager License 40

5.7.2 API License 40

5.7.3 Redundant License 40

5.7.4 Endpunkte License 40

5.7.5 Admins License 40

5.7.6 Health Status Lizenz 41

5.8. Redundant Switching Manager 42

5.9. Update Service 43

5.10 Log out 46

5.11 Hardware Licenses 47

5.12 Virtual Machines 50

6. Contact **52**

The web based KVM - SWITCHING MANAGER is a software for managing a KVM network.
It offers a variety of functions that are helpful in maintaining the network.
This manual shows the administration of the KVM - SWITCHING MANAGER WEB as well as some concrete examples to control the KVM network. Information about compatible hardware (switches, Ethernet cables) and installation instructions can be found in the manual of the used kvm-tec KVM extender.
In case of questions or problems in connection with the KVM - SWITCHING MANAGER WEB or any other kvm-tec product, please contact the kvm-tec support team

1. INTRODUCTION

1.1 SYSTEM REQUIREMENTS

- Windows 10 (64bit) or higher
- 4 GB RAM
- 50 MB free memory
- 1 Gbit separate network interface

2.0 Installation

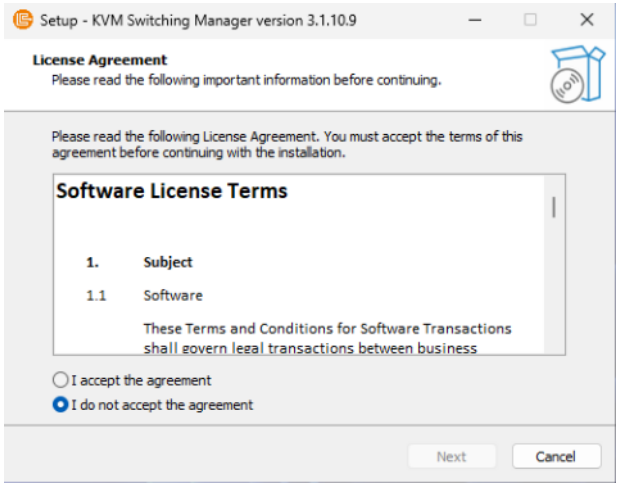
There are two variants of installations!
Here is the Software for the Download

2.1 INSTALLATION - 1. VARIANT

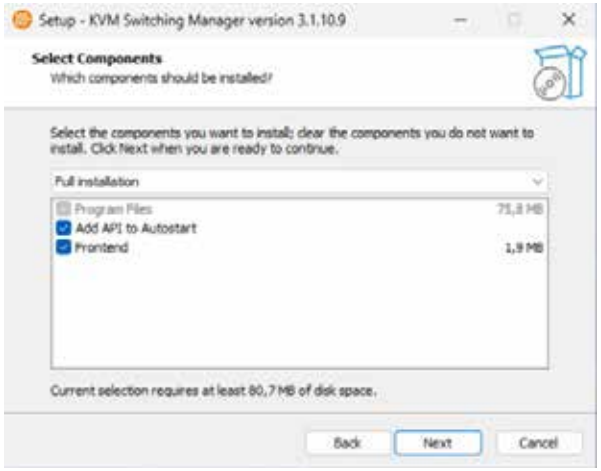
Open the KVM_Setup

ACCEPT THE LICENSE AGREEMENT

Confirm the license agreement and press „Next“.

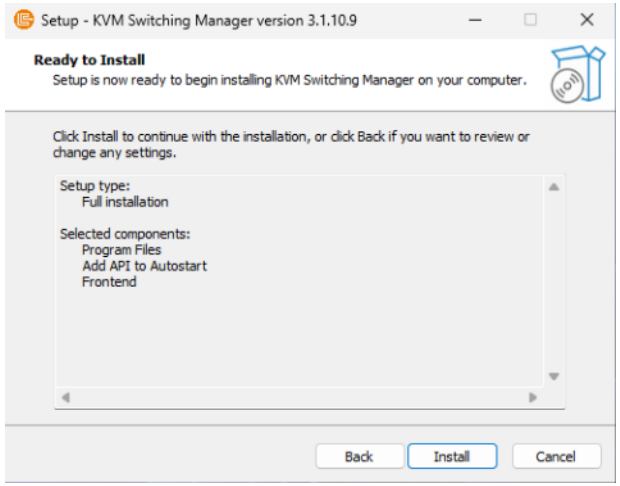


Then select „Full Installation“ and press „Next“.

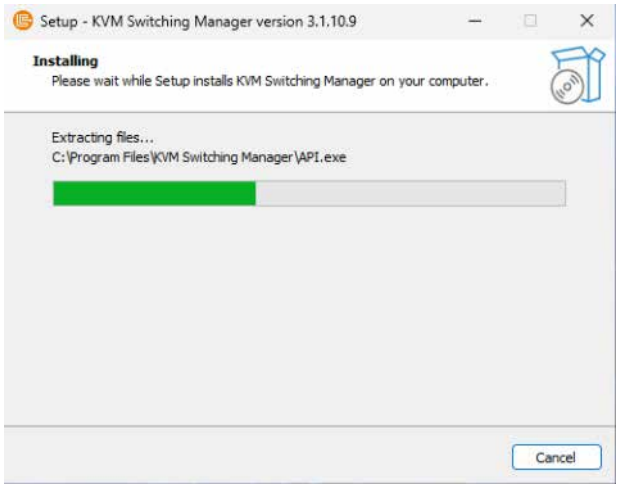


READY FOR THE INSTALLATION

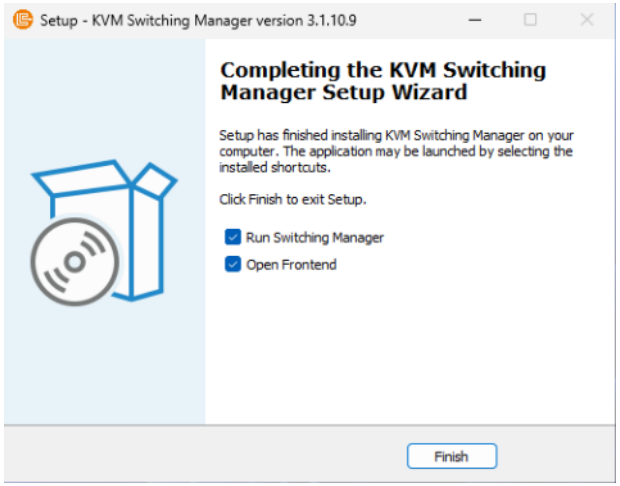
Here you will be shown all the information again and you can now start the installation. Press „Install“ for this.



The following section of the installation runs automatically.



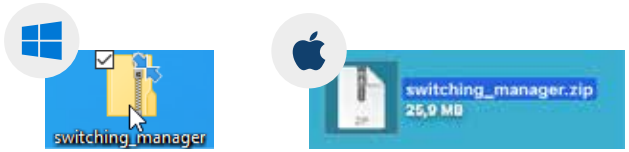
When the installation is finished press „Finish“ and the installation is complete.



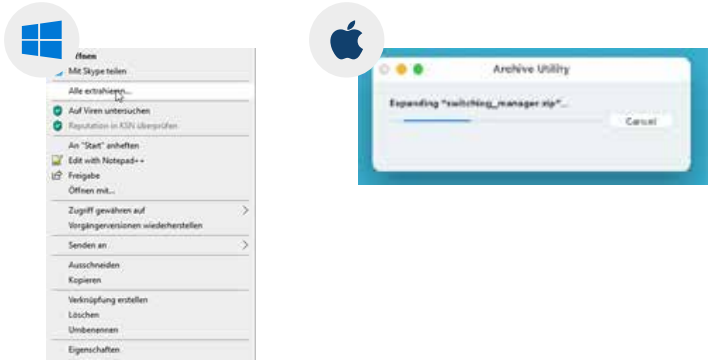
2.2 INSTALLATION - 2. VARIANT

Before starting the installation, make sure that port 5000 in the firewall is open and ready for use. This is necessary for the backend to run properly. For the Switching Manager Web, a web server and a Windows 64-bit machine is required.

In the first step, please unzip the zip file. This contains both the front- as well as the backend and are stored in the subfolders.



SCREEN: zip - Switching Manager file



SCREEN: zip - File is unpacked

2.2.1 CONFIGURE THE MULTICAST ADDRESS POOL

Only required if you want to set the multicast addresses user-defined.
This step must be performed before you start Switching Manager for the first time.
If you want to change it later, you must stop the Switching Manager and restart all devices.

Standard start adress 224.1.0.0
Can be changed in the frontend or in the settings.xml file.

Settings.xml – File:
To find the file under Windows it is best to press „Windows key + R“ and then enter %localappdata% and then go to /SwitchingManager/data/settings.xml.

Example path: C:\Users\username\AppData\Local\SwitchingManager\data\3.2.0

If you do not want to use the default addresses:
<MultiCastGroupStartAddress>239.210.0.0</MultiCastGroupStartAddress>
<MultiCastGroupEndAddress>239.210.1.255</MultiCastGroupEndAddress>

```
<?xml version="1.0" encoding="utf-8"?>
<GlobalSettings xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <PCIPAdress>0</PCIPAdress>
  <UserSystemEnabled>false</UserSystemEnabled>
  <AutoMgsLoginEnabled>false</AutoMgsLoginEnabled>
  <EnableCopyAppToFactory>false</EnableCopyAppToFactory>
  <ReleaseMode>true</ReleaseMode>
  <ExtenderAutoAdd>true</ExtenderAutoAdd>
  <DefaultExtendersViewLayoutType>List</DefaultExtendersViewLayoutType>
  <LoginTTL>5</LoginTTL>
  <ExtenderTTLTimerInterval>0</ExtenderTTLTimerInterval>
  <ExtenderTTL>120</ExtenderTTL>
  <TimeTillNextPreview>500</TimeTillNextPreview>
  <EnableUSBHIDSharing>false</EnableUSBHIDSharing>
  <EnableUSB2Sharing>true</EnableUSB2Sharing>
  <HideInactiveExtenders>false</HideInactiveExtenders>
  <RestoreLastConnection>true</RestoreLastConnection>
  <EnableLegacyUpdate>false</EnableLegacyUpdate>
  <EnableGridPreview>false</EnableGridPreview>
  <EnablePerformanceLogging>false</EnablePerformanceLogging>
  <BackupTimeHour>0</BackupTimeHour>
  <BackupTimeMinute>0</BackupTimeMinute>
  <MaxBackupFileCountDatabase>10</MaxBackupFileCountDatabase>
  <MaxBackupFileCountSettings>10</MaxBackupFileCountSettings>

  <MultiCastGroupStartAddress>239.210.0.0</MultiCastGroupStartAddress>
  <MultiCastGroupEndAddress>239.210.1.255</MultiCastGroupEndAddress>
</GlobalSettings>
```

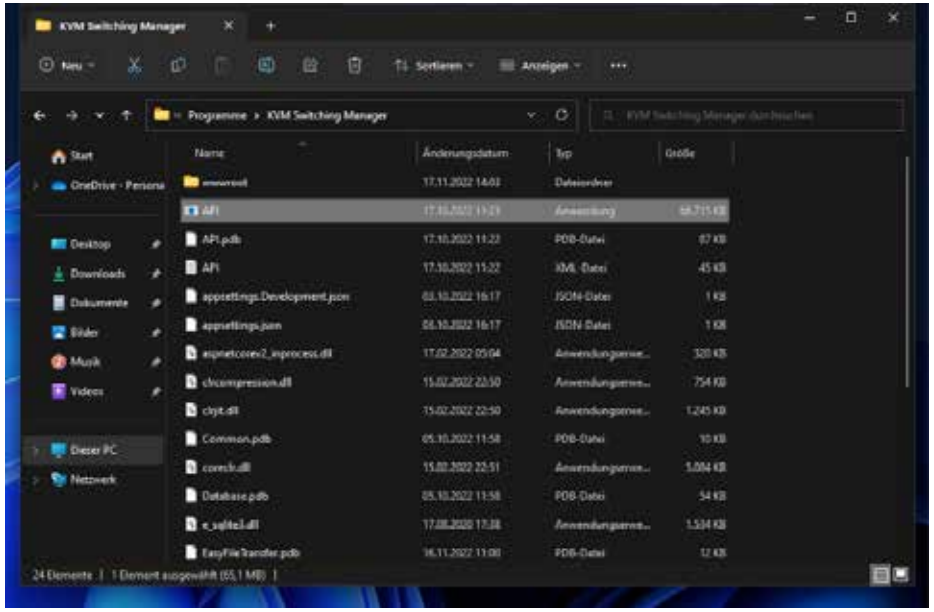
SCREEN: settings.xml - File is configured

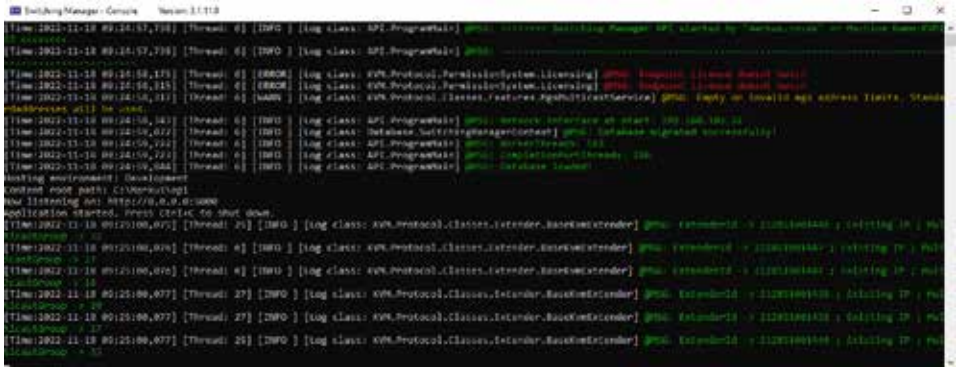
FRONTEND

Enter 239.210.0.0 for Multicast Start Address and 239.210.1.255 for Multicast End Address. Then press „Save Changes“.

2.2.2 INSTALLING THE SWITCHING MANAGER WEB BACKEND

In the unzipped „KVM Switching Manager“ folder there is an application named API. If you start this application, a console opens which is the backend of the Switching Manager.
This window can be minimized for now.





FRONTEND

The frontend provided in the installer is written in Angular. The backend is already able to host the frontend directly.

The frontend is located in the wwwroot folder, which is a subfolder of the KVM Switching Manager folder.

By default, you can search for localhost:5000 in the web browser of your choice, as long as the backend is running, and you will get the Switching Manager user interface. The first page you will encounter is the login screen.

2.3 CONNECTING THE PC TO THE KVM EXTENDER NETWORK

Connect a free 1Gbit network interface of the PC with a network switch

within the Extender network. It is not necessary to configure the network interface to be configured within Windows.

To ensure a good connection, a Cat5 or better Ethernet cable is recommended for connecting the PC to the switch.

3.1 LOG IN

SCREEN : Login

Standard setting
USER: admin
PASSWORD: admin

3.2 SET THE NETWORK INTERFACE

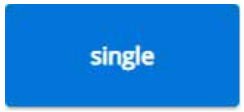
If multiple network interfaces are available and active on the machine, Web Switching Manager must be set up accordingly to use the desired interface. Select the appropriate network interface by navigating to the Globals Settings menu and using the drop-down menu shown in the figure below.

4.0 THE 3 BASIC COMMANDS

The three basic commands in the Switching Manager are Connect, Disconnect and Share. Connect enables a connection between a Local Unit, which receives the displayed image directly from the source (PC, notebook) and a Remote Unit, which is connected to the monitor. Therefore, with the Switching Manager it is possible to provide the monitor with different video signals without any changes to the hardware. These connections can also be easily disconnected again. In doing so, the video signal is interrupted. With the basic command Sharing, several monitors can be supplied with a video signal.

4.1 CONNECT

To connect two extenders, first select a free local unit by clicking on it. The selected extender is then displayed in light blue. Clicking on the free Remote Unit connects the two.



SCREEN: Selected extender - display in light blue shade

After you have selected the first connection partner, click on the second one. Immediately after selecting the second extender, the connection is established.

Connected units are displayed in dark blue. If the connection is established, the name of the connected Local Unit is displayed below that of the Remote Unit on the Remote page.

SCREEN: Two connected KVM extenders

4. BASIC COMMANDS

4.2 DISCONNECT

To terminate a connection between two extenders, click the remote that should be disconnected.

Screen: Extender Units - before and after the connection has been started

4.3 SHARING

The video signal from one source can be shared with multiple monitors. A shared connection transmits only the video signal. To share the video of a running connection, select the Local Unit whose image is to be shared, and then click the Remote Unit that is to receive the image.

SCREEN: Videosharing

5. The functions of the Switching Manager

The following chapters describe the selection options and functions of the Switching Manager software.

SCREEN: Function menu of the Switching Manager

- **Connect**
- **Extenders (Extender Information)**
- **Features**
  -Mouse Glide & Switch
  -Multihead Groups
  -Scalable Line
  -Scenario
- **Users**
- **Groups**
- **System**
  -General Settings
  -Export/Import
  -Health Status
  -Virtual Machines
- **License**
  -Software
  -Hardware
- **Update**
  -Flexline
  -Media4Kconnect
  -ScalableLine
- **Sign out**

4.3 SHARING

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SCREEN: Videosharing

5.0 FUNCTIONS

The following chapters describe the selection options and functions of the Switching Manager software.

SCREEN: Menu of functions from the Switching Manager

- **Connect**
- **Extenders (Extender Informations)**
- **Features**
  -Mouse Glide & Switch
  -Multihead Groups
  -Scalable Line
  -Scenario
- **Users**
- **Groups**
- **System**
  -General Settings
  -Export/Import
  -Health Status
- **License**
  -Software
  -Hardware
- **Update**
  -Flexline
  -Media4Kconnect
  -UVX
  -MX
- **Sign out**

5.1 CONNECT

Extenders can be connected to each other in this menu and existing connections can be terminated in this menu item.
The extenders can also be searched for by name and sorted.
While the Switching Manager is running, new extenders can be added to the network by reloading the page (Shortcut
F5) These are updated in the list and new devices will be displayed.

SCREEN: Connect

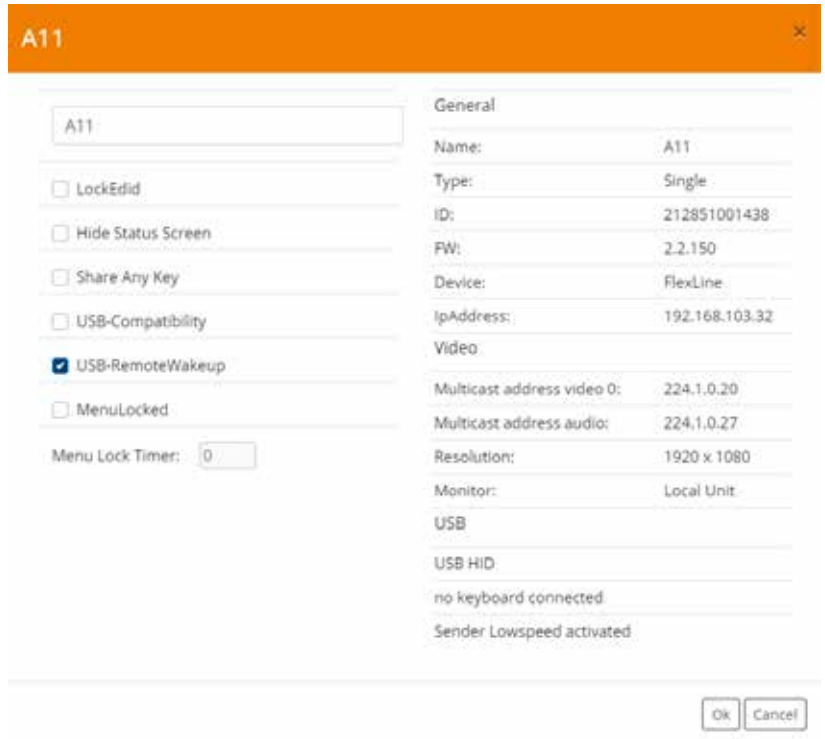
SCREEN: Sort Extender

5. FUNCTIONS

5.2 EXTENDER INFORMATION

The information of all extenders on the network is displayed and can be renamed.

SCREEN: Extender Information



SCREEN: Edit Extender

5.3 FEATURES

In the menu item “Features” you will find the subitems:

- Mouse Glide & Switch
- Multihead Groups
- Scalable Line
- Scenarios

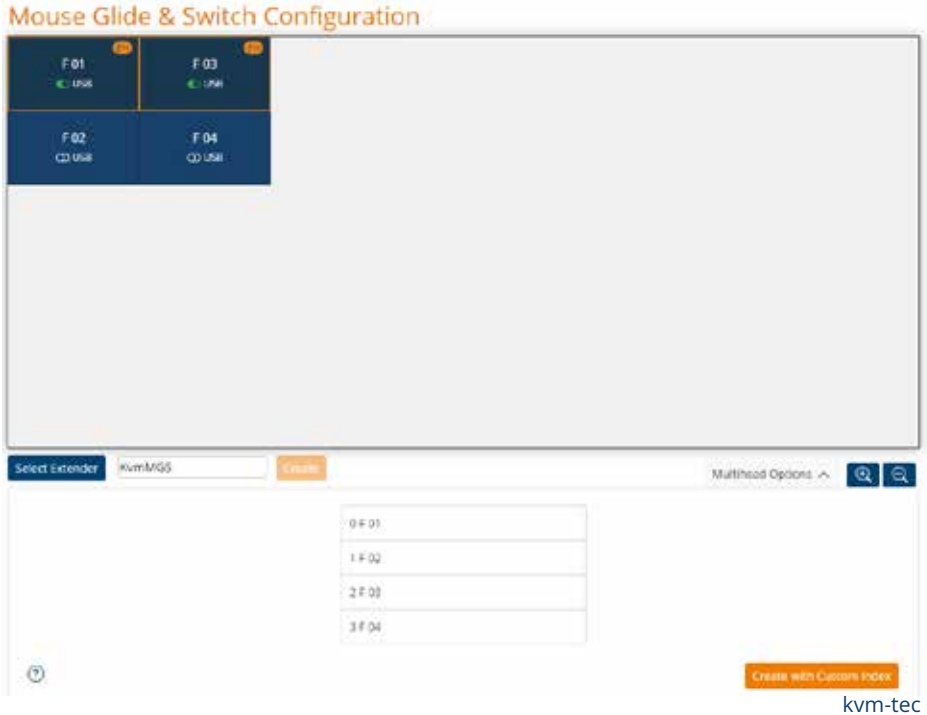
5.3.1 FEATURES -MOUSE GLIDE & SWITCH

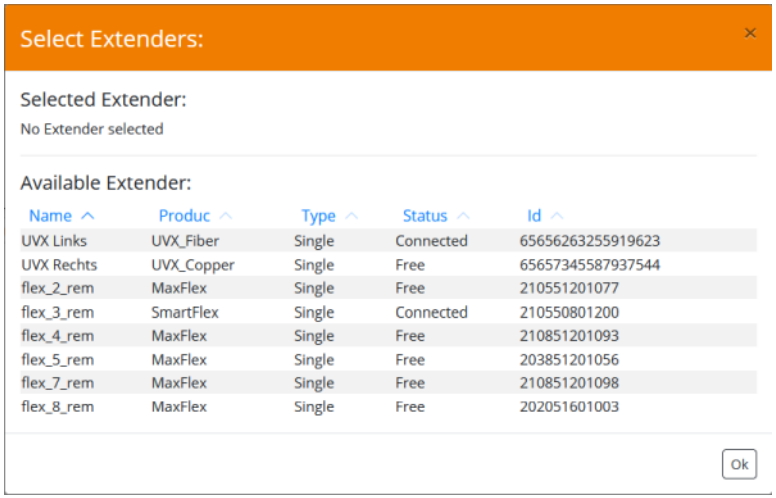
Mouse-glide & Switch groups can be created, edited and deleted. With the Mouse-glide & Switch feature, up to 16 monitors can be operated from one workstation with one mouse and one keyboard. To create a new Mouse glide & Switch group, click on the „Create MGS Configuration“ button. A new window opens and the desired extenders can now be selected. For Remotes to be displayed, they must be connected to a Local. Now the arrangement of the screens can be done and it can be selected which of the devices will take over the USB control (USB Master). With the USB
Master, which receives the USB signals, the mouse and keyboard can be moved.

SCREEN - Mouse glide & Switch

By standard, MGS groups are set up from left to right and are also switched in this order.

However, if you want to work with 2-row Multiheads, so that Multiheads (consisting of 1 Remote each from the first and second row) are lined up, you have to open the Multihead Options. Configured it looks like this:





SCREEN: Edit the Mouse glide & Switch group

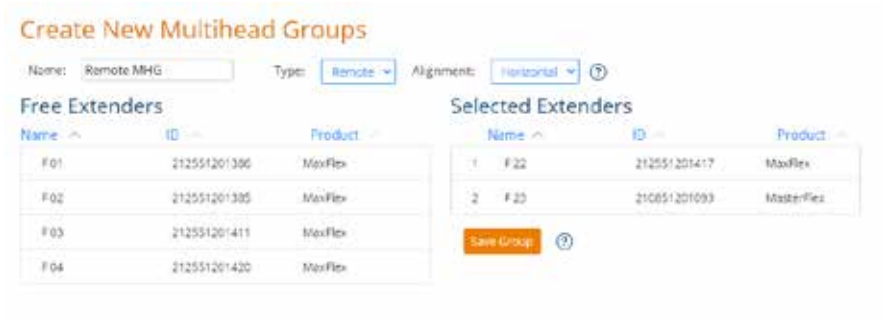
SCREEN: Delete a Mouse glide & Switch group

5.3.2 FEATURES - MULTIHEAD GROUPS

The multi-head configuration allows you to control multiple remotes, as well as locals (when multiple locals are connected to a PC), referred to as heads in this context, and their screens with a single keyboard and mouse connected to a primary local unit.

SCREEN - Multihead Group List

Alignment includes Horizontal, Vertical and Quad. These alignments are only to be set for the ScalableLine.



SCREEN - Multihead Group - select Extender

SCREEN - delet Multihead group

5.3.3 FEATURES - SCALABLE LINE

SCALABLELINE:
You can use the dropdown to select a scenario created by this Scalable Remote in advance. Then you press Apply and you can open up to 16 Scalable Monitors as predefined. The function is the same as in the Scalable OSD, where you can save and load these scenarios (in the Manager only load).

5.3.4 FEATURES - SCENARIOS

Scenarios are used to switch all extenders, which are defined in a scanario, with the push of a button. A distinction is made between a scenario and a partial scenario.
In a full scenario, all extenders in the Switching Manager can be switched, and in a partial scenario, selected extenders can be switched.

To start a „full scenario“, enter the name and in the „Scenario Name“ field and then press „Create“.

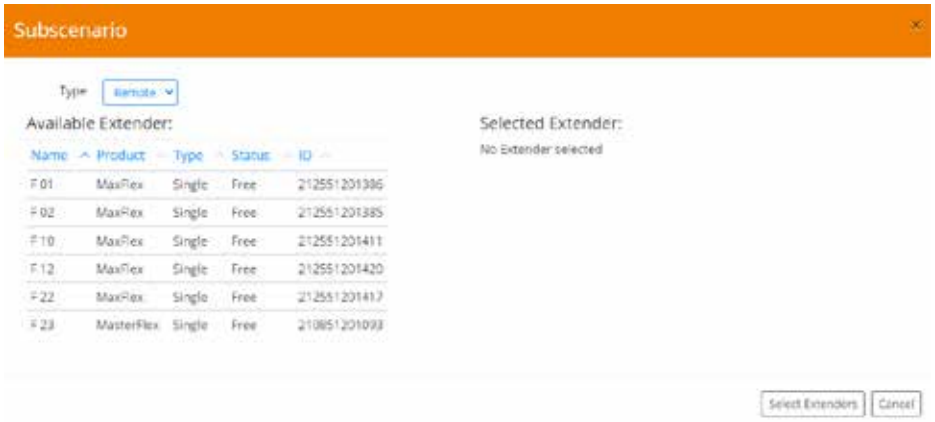
You can start a scenario by pressing the „Play“ button or delete it by pressing the „Dung Bucket“ button.

A scenario can be edited by pressing the „Pen“ button.

Sub Scenario

To create a sub-scenario, press the „Configure Sub Scenario“ button. Then the following view appears:

Press the „Select Extender“ button and add the desired extenders.
All extenders, which are not added during the partial scenario, will not be changed afterwards during switching!



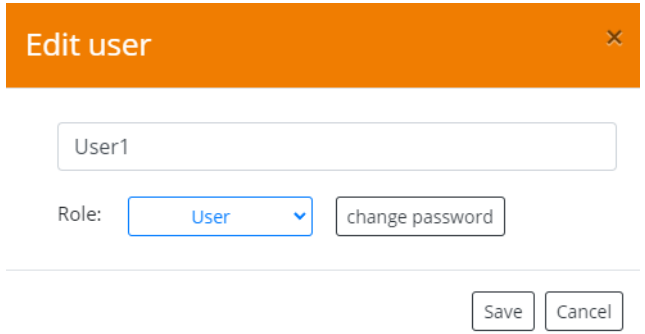
In the following view, you will see the extenders that have been selected for a partial scenario highlighted. Then assign a name for the partial scenario and click on „Create“. The configuration of the partial scenario is now complete.

5. FUNCTIONS

5.4 USER SETTINGS AND USER ROLES

Users can be created, modified and deleted in the User Settings.

SCREEN: User Settings



SCREEN: Popup-window „edit User“

There are three different roles among the users
These users have different user rights

USER ROLES

User

GroupAdmin

UniversalAdmin.

5.4.1 USER

The user can connect and disconnect the extenders assigned to his group.

SCREEN: View a profile with „User“-Status

5.4.2 GROUP ADMIN

The GroupAdmin has rights to view and change all options except those in the „Groups“ menu item. He can also create new users, which are then automatically added to his assigned group. He can only access extenders that are in his group.

SCREEN: View of a profile with “GroupAdmin” role

5.4.3 UNIVERSAL ADMIN

The UniversalAdmin has all rights. He can add new groups and integrate and remove users and extenders in them. He also has all the rights of the other roles. The default profile with the credentials admin/admin has the UniversalAdmin status

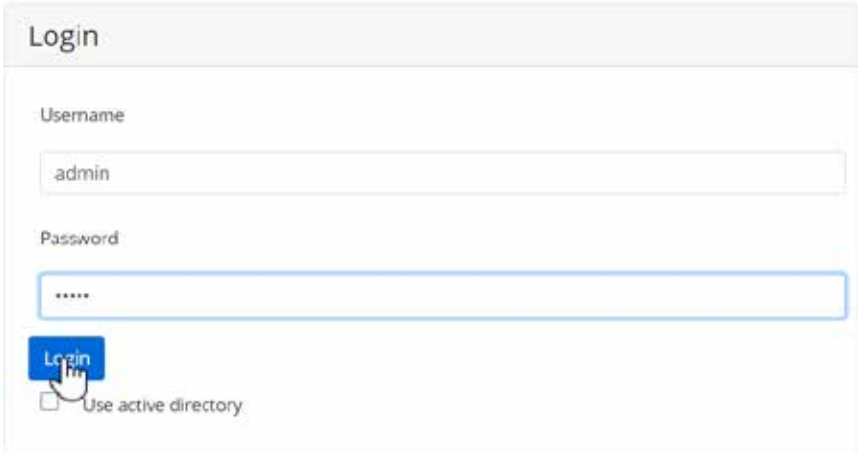
SCREEN: profile with „UniversalAdmin“-role

5.5 ACTIVE DIRECTORY

The webswitching manager is able to use Active Directory. This makes it possible to log in with your own data within the company.

To be able to activate Active Directory, first log in with the default admin profile (admin - admin). Make sure that the field „use active directory“ is not checked.

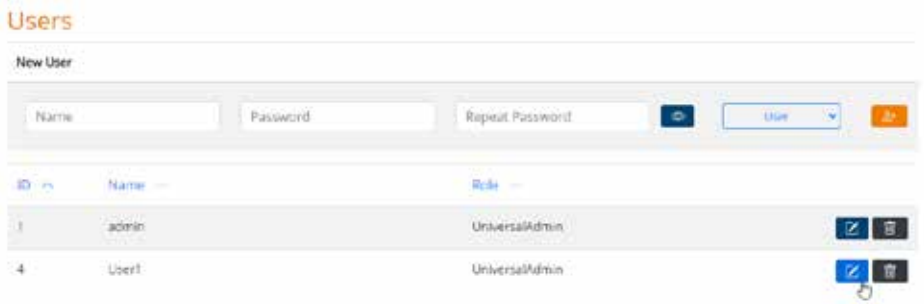
Then switch to the menu item „General Settings“ and add the Active Directory domain of the company into the input field and save the entry with „Save Changes“.



SCREEN - active directory log in

5. FUNCTIONS

In the next step, please log out from the admin profile. After that the Active Directory is already active. From now on you can log in with the user data of the company.
Please make sure that the „use active directory“ field is checked. The first user who logs in through Active Directory is automatically assigned the UniversalAdmin role. Additional users logging in through Active Directory will then be assigned the User role.
The roles can be customized as desired by each UniversalAdmin. Only profiles of users who have already logged in can be changed by the admin. It is not possible to change user passwords via Switchingmanager but only via Active Directory. If the password is changed, the new password is required.



SCREEN - active directory user

5. FUNCTIONS

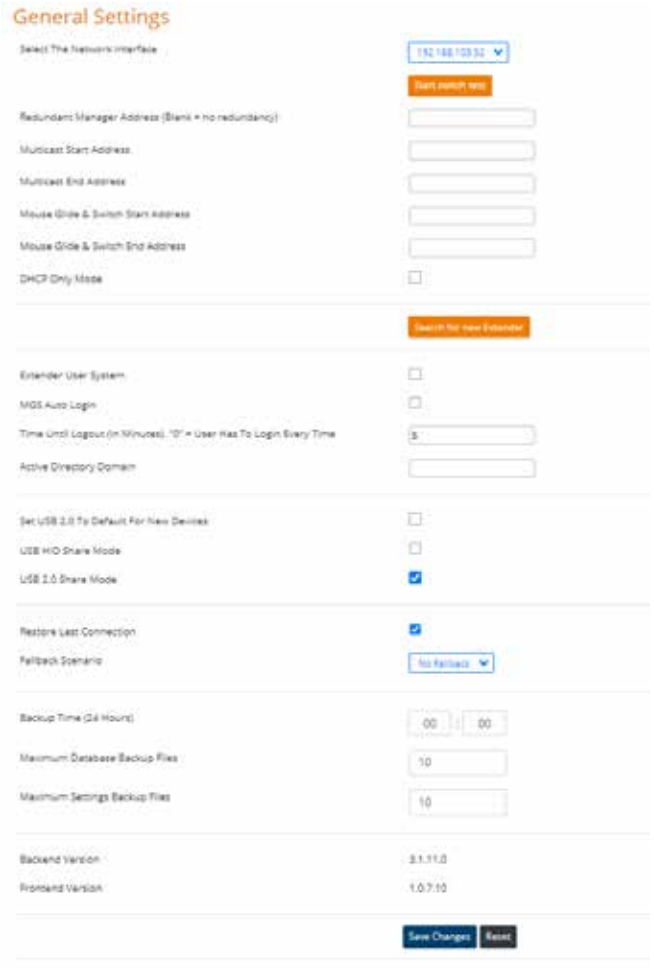
5.6. GENERAL SETTINGS

In the menu item „System“ you will find the General Settings, Export/Import, Health Status and Virtual Machines.

All changeable options concerning the network and the current version of the Switching Manager are displayed here.
To save the changes press the SAVE CHANGES button.

You can set all settings either in the frontend (screen „General Settings“).
If you have an older version of the Switching Manager Web, you can also change the following settings in the „settings.xml“ file.

```
<MultiCastGroupStartAddress>address</MultiCastGroupStartAddress>
<MultiCastGroupEndAddress>address</MultiCastGroupEndAddress>
```



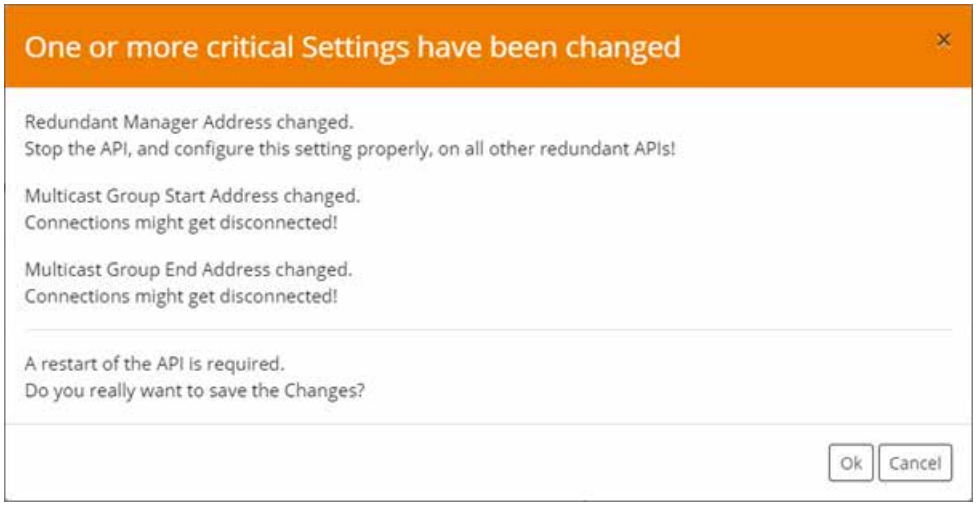
SCREEN General Settings

Redundant Manager Address
for this you can find a detailed description in the chapter Redundant Manager

Multicast Start Address
If you do not enter a new address, the following address is stored by default: 224.1.0.0

Multicast End Address
If you do not enter a new address, the following address is stored by default: 224.1.255.255

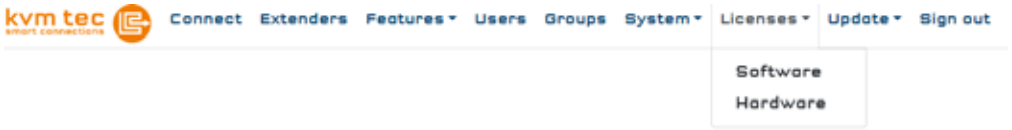
If you change one of these 3 addresses, a window will appear where pressing the “Ok” button will save the changes.



Afterwards the Switching Manager must be restarted!

5.7. LICENSES

Here you can find all licenses, which can be activated with costs!

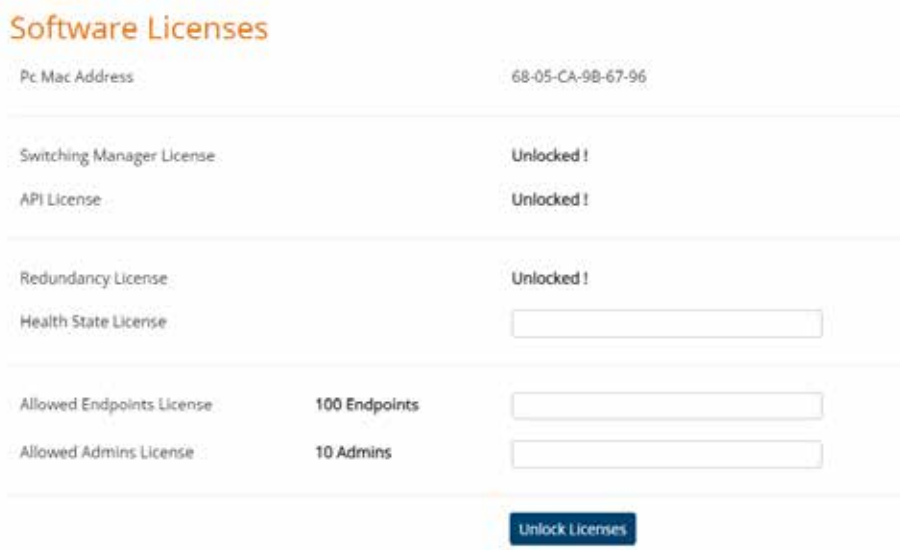


The following licenses can be activated subsequently:

- Switching Manager license
- API license
- Redundant license
- Endpunkte license
- Admins license
- Health Status license

For this purpose please send us an order to order@kvm-tec.com

You will then receive the unlock code by e-mail. You only need to enter it in the field and press „Unlock Licenses“.



In this window you can now read your Mac address, recognize unlocked licenses by the status „Unlocked !“ and unlock new licenses for your Switching Manager via the input fields and the button „Unlock Licenses“.
The Mac address: It is written here, because it is important for the KVM-TEC team in case of a purchase request.
Unlocked !: means that a license is unlocked in the system, except for „Allowed Endpoints“ and „Allowed Admins“, because here you can read the number directly and you can extend it, for a fee.
Unlock Licenses Button: If you have purchased your license or licenses from the KVM-TEC team, after payment processing, you can enter them here in the corresponding field. If you have entered all purchased licenses and press the Unlock Licenses button, the state should jump to „Unlocked !“, except as mentioned for „Allowed Endpoints/Admins“, here the number should increase.
Basically it is strongly recommended that after unlocking licenses, via the „Unlock Licenses“ button, the Switching Manager (API) is restarted to avoid error states. In the case of the Redundancy license, an API restart is mandatory, since this is a massive system change.

5.7.1 SWITCHING MANAGER LICENSE

One license is included by default. When using the redundant Switching Manager, it is necessary that both PCs have the Switching Manager license activated in the backend.

5.7.2 API LICENSE

This license is needed to use a new frontend.

5.7.3 REDUNDANT LICENSE

You must have purchased this license to use Switching Manager Web redundantly.

5.7.4 ENDPUNKTE LICENSE

With this license, more endpoints can be unlocked.

5.7.5 ADMINS LICENSE

With this license the number of universal admins can be extended. One admin license is included with the purchase of the software.

5.7.6 HEALTH STATUS LIZENZ

Explanation of the columns:

- Status: Provides information on the overall health status of the extender.
  Green checkmark stands for everything is fine. Yellow triangle with call sign indicates a problem that does not need immediate attention. Appears when an extender has redundant links/power connections and at least one of them is not working or connected. Also appears when the temperature is higher than it should be, but does not immediately cause device failure.
  Red icon (looks like a stop sign), appears when the temperature of an extender is way too high and something needs to be done immediately to ensure that the device does not break.
  Offl: Device is not discoverable by the manager, no links and or no power.
- Name: Name of the Extender
- ID: Extender ID of the device
- °C: The current temperature of the FPGA chip, if the temperature is too high a symbol is shown (yellow or red temperature gauge). With offline 0
- Power Supply: Gives info if an extender has 1 or 2 power connectors and which one is connected or working. In case of offline in gray.
- Link Status: Shows if an extender has 1 link or is redundant and if both are connected and working. When offline in gray
- Monitor Name: The name of the monitor connected to the remote, for locals it is written „Local Unit“ and for offline devices it is simply written offline. For remotes that do not have a monitor connected, it says „Unidentified“.

The health status also has some tooltips next to the individual symbols, which give you information about which link it is or what the status symbol stands for, for example.

5.8. REDUNDANT SWITCHING MANAGER

All redundant managers must have the „Switching Manager License“ and the „Redundancy License“ enabled. In the General Settings in the frontend, the „Redundant Manager Address“ must be set to the IP address of the manager that is to take over in the event of redundancy. In addition, you must enter the redundant frontend in the config.json.template file, which can be found under „KVM Switching Manager\wwwroot\assets“, and then save the file under the name „config.json“ in the same folder. In case you don’t use the installer, you can find the file under Frontend_(version)\assets instead and the procedure is the same.

```
{
  "apiUrl"          : "http://localhost:5000",
  "wsUrl"           : "ws://localhost:5000/ws",
  "apiUrlSecondary" : "address:port",
  "wsUrlSecondary"  : "ws://address:port/ws"
}
```

SCREEN: file Frontend

5. FUNCTIONS

5.9. UPDATE SERVICE

Function

In this view, all extenders are displayed that are assigned to the Switching Manager and for which a firmware update is to be performed. As a first step you select the device type

SCREEN: Selection of the device type

To update the devices, three steps must be performed

1. Step

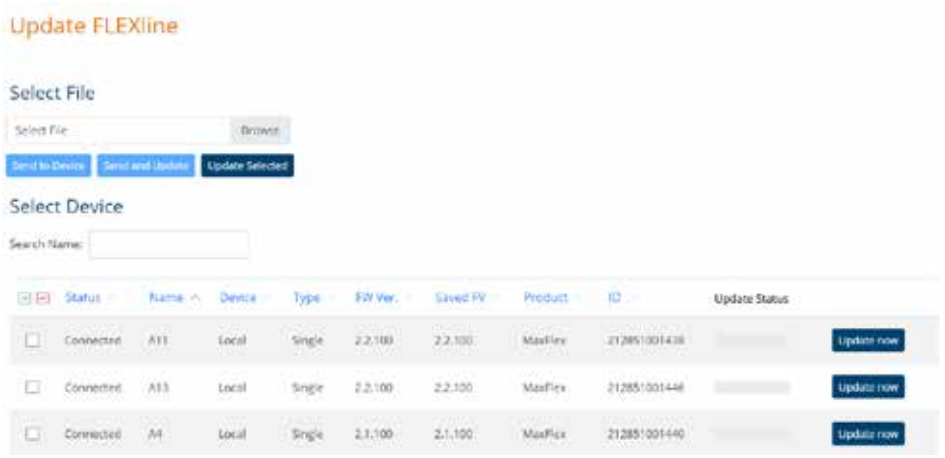
Selection of the correct update file It must be an update file for Flexline in this case. The correct extension of the update files is „.bin“.

2. Step

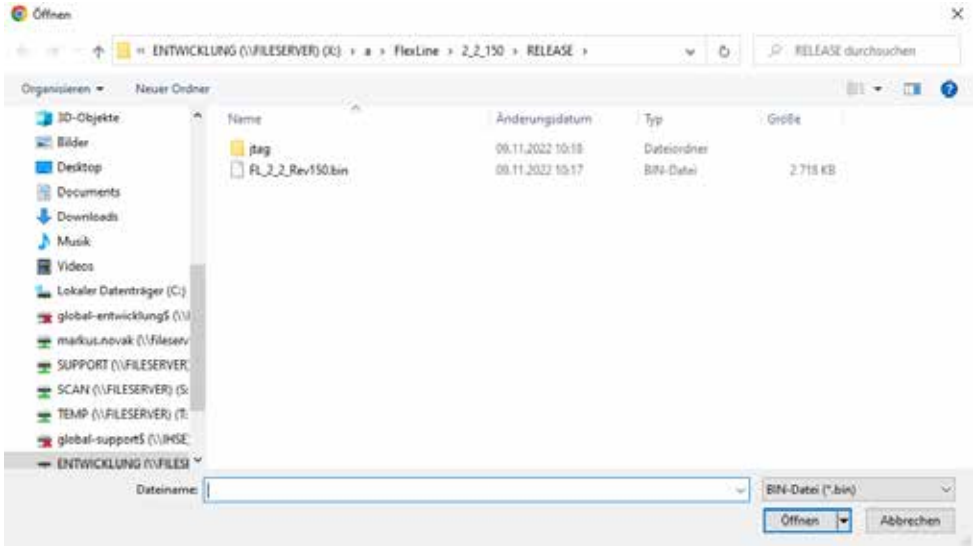
Selection of the extenders to be updated. The selection is made by clicking the checkboxes.

3. Step

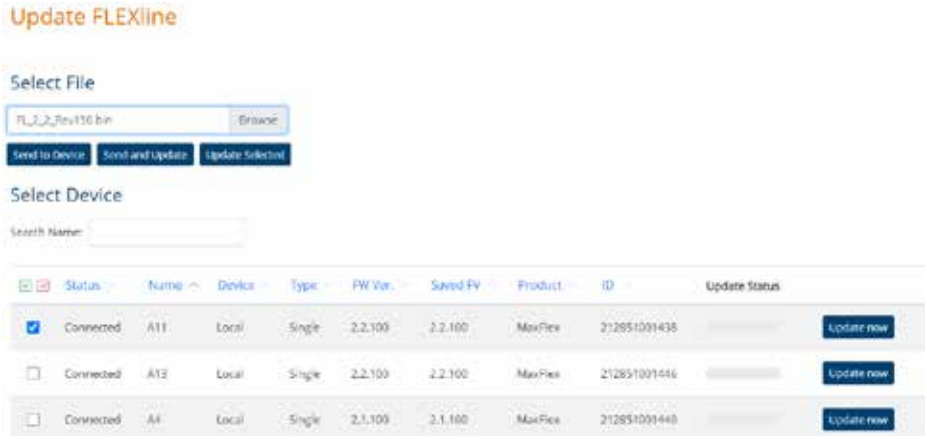
Send to Device: the firmware is sent to the selected extenders without interrupting the running operation. (takes a few minutes)
Afterwards the firmware can be activated with Update Selected and the devices are restarted.
Send and Update: Here the two steps are performed automatically one after the other. The separate execution is advantageous for updates of large systems, because the time of the interruption can be better planned.



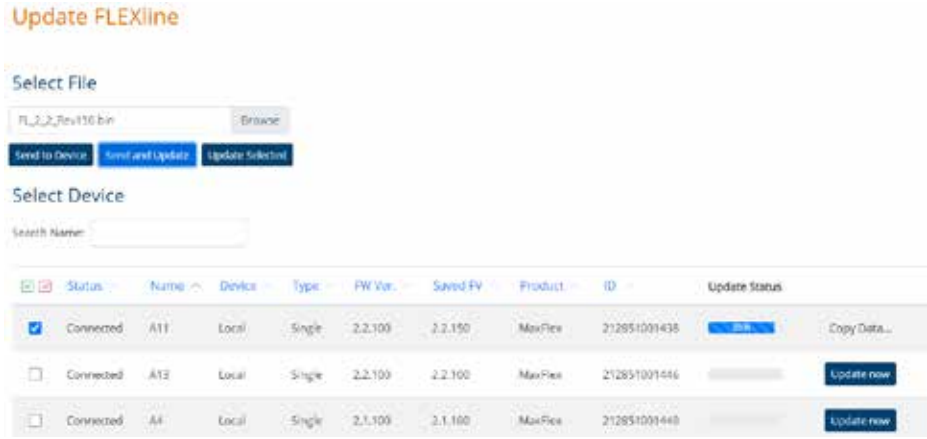
SCREEN: Update Flexline



SCREEN: Update Flexline is selected



SCREEN: the update is installed and can be performed



SCREEN: the update is now done

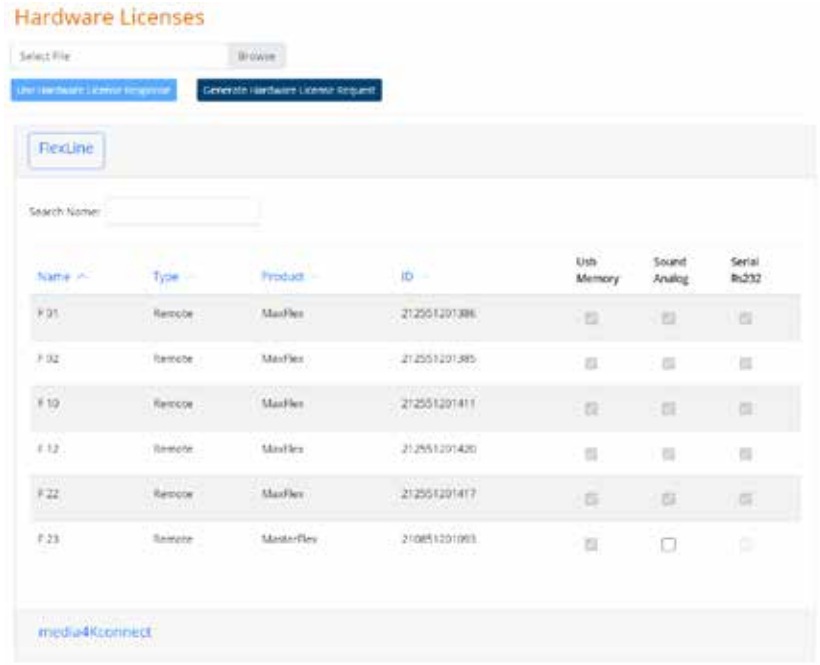
5.10 LOG OUT

The Logout button logs out the current user. The user is forwarded to the Log In screen. In the Log in screen, the user can log in again.

SCREEN Log In

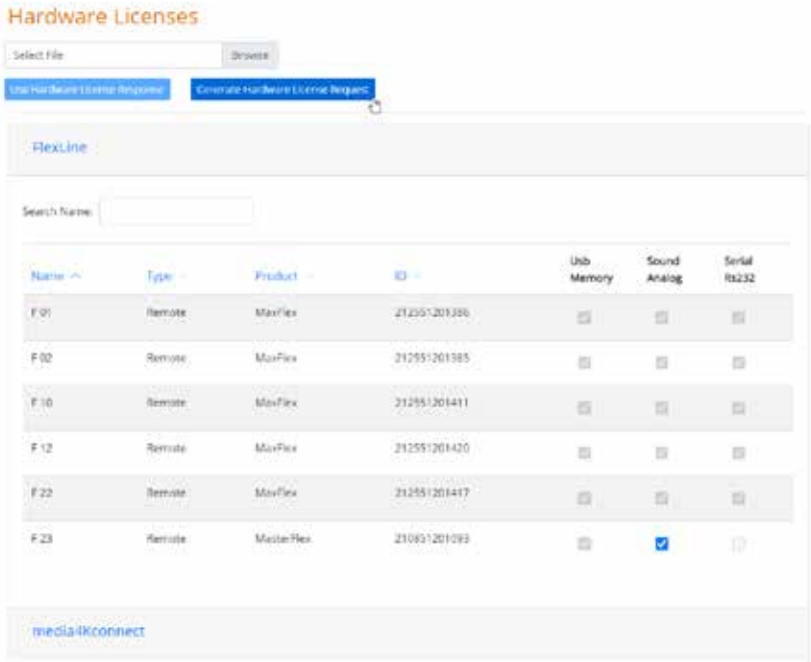
5. FUNCTIONS

5.11 HARDWARE LICENSES



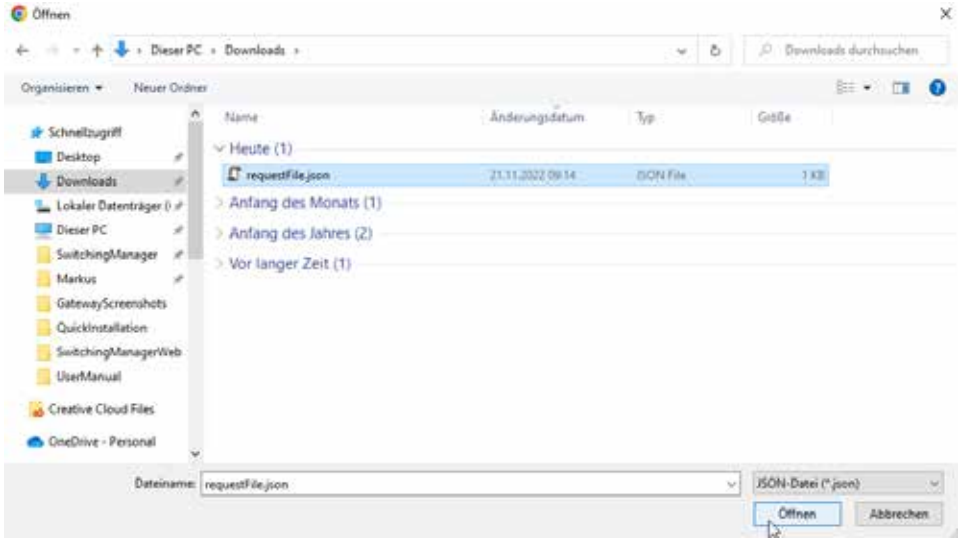
Here you will find expandable tables, for the most different device types. You can also see all licenses / unlock codes that are unlocked for a device (with check mark) or can still be unlocked.

Here you can quickly and easily create a „Hardware License Request“. This request is nothing more than a file that contains important information for the kvm-tec team, for activation requests of customers. So if you want to purchase licenses that are device / hardware - related, so they check here the desired features of each device and press the „Generate Hardware License Request“ - button.



5. FUNCTIONS

After a successful purchase transaction with a request file, you will receive a response file from us. You can also select this on the Hardware Licenses page via „Browse“ and by subsequently pressing „Use Hardware License Response“, all codes are sent to the devices. (when you press Browse)

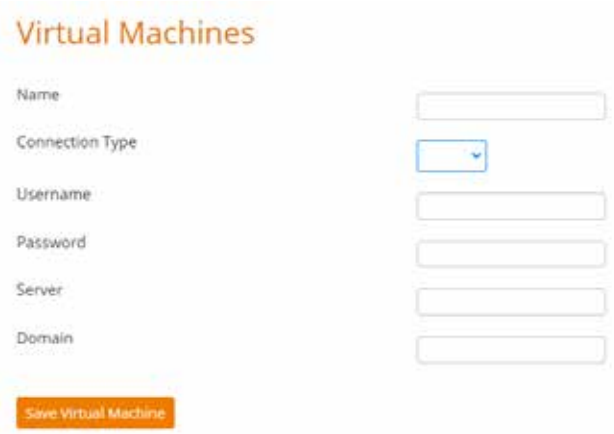


5.12 VIRTUAL MACHINES

In a system that has gateways, you can add, edit, and delete virtual machines here. You can also see here which virtual machines are in use and the associated gateway. If you have a new „virtualMachine.xml“ file and have replaced it with the old one (please make sure that no used virtual machine is removed), you can load it into the Switching Manager during operation by pressing the „Reload Virtual Machines from File“ button. The file „virtualMachines.xml“ can be found in %localappdata%/SwitchingManager/data.

The frontend provides a simplified handling and offers all possibilities and more safeguards than if you would edit the file.

Adding and editing (pencil icon) in the frontend looks like this:



Name, Connection Type and Server (IP address of the virtual machine) must always be filled in. When you are finished with your entry, press Save Virtual Machine.

5. FUNCTIONS

If you want to remove a virtual machine, press the „Trash can“ button.

6. CONTACT

If you have any questions about our products, please contact kvm-tec or your dealer.

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