

AVIO MASTER User Guide

Wings AV Suite by AV Stumpfl
March 2016



avio master 

Just add Creativity!

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1 INTRODUCTION

1.1 ABOUT THE AVIO MASTER

The Avio Master by AV Stumpfl is a highly reliable control unit for show control and building automation projects. It is based on Windows 7 Embedded and has been provided with selected components that ensure optimal configuration. The Avio Master is distinguished by the following features:

- ✓ Operating system and media data are on separate disks – therefore a good performance and high reliability are guaranteed.
- ✓ An Avio license is already included. You can directly start implementing your ideas as soon as the Avio Master is connected to the network.
- ✓ A special desktop interface allows fast access to the most important functions (see Chapter 5, *The desktop user interface*).
- ✓ The already installed support module *TeamViewer* allows remote access for remote maintenance and troubleshooting.
- ✓ The configuration of the Avio Master is protected, i.e. you are able to make changes but the defined configuration can be restored at any time using the Backup Manager. Certainly you can also save and load your own configurations for particular applications and test scenarios. Configurations can also be *frozen*, i.e. you can make changes, but the defined configuration is restored again after a restart. See also chapter 7, *The AV Stumpfl Backup Manager*.

The target audience of this user guide are persons that want to use the Avio Master for their show control or building automation projects. We assume that the reader is already familiar with the Avio system. This document provides an overview of working with the Avio Master and should help you in implementing your first projects in that field.

1.2 ABOUT AVIO

Everybody involved in current AV installation projects knows about the difficulties of integrating the devices of the different manufacturers into one system as every device comes with another control protocol. We took these difficulties into deep investigation and developed *Avio*.

Avio is both a clever control system and a network protocol that we developed especially for AV installations. The idea behind *Avio* is to raise all devices of an AV installation (like media servers, show control units, lights, mixers, projectors, switches ...) to the same abstraction layer. All controllable inputs and readable outputs of each device are made available in the network architecture view and can be virtually wired by the use of a drag & drop editor (called *Avio Manager*). From simple applications, like connecting a button of a touch interface with the power control of a projector, to complex controls and logics, like virtually wiring the gesture control of the Microsoft Kinect device with video parameters of a media server, *Avio* is able to do the job.

Features of the Avio Master

Target Audience

Avio as control system

As soon as a device is embedded into the Avio network, Avio takes care that every value or command that was sent from one device to another is reliably transmitted and executed.

Avio is the central heart of the Wings AV Suite and an immanent part of every Wings AV component, i.e. in Wings Vioso, Wings Touch, Avio Manager, Wings IObox, Wings Engine and Avio Master, to name them all. You'll find an overview of all Wings AV components on our website under <http://avstumpfl.com/en/media-control-systems/wings-av-components/>

1.3 MANUFACTURER'S CONTACT DETAILS

AV Stumpfl GmbH	Tel.: +43 (0) 7249 / 42 811
Mitterweg 46	Fax: +43 (0) 7249 / 42 811 – 4
4702 Wallern	e-Mail: AVstumpfl@stumpfl.com
AUSTRIA	www.AVstumpfl.com

1.4 SUPPORT INFORMATIONEN

This user guide contains detailed information about the usage of the Avio Master. Additionally you'll find answers to frequently asked questions on our website.

If you have questions about or suggestions regarding our products or tutorials, please contact us directly or one of our distribution partners.

Our support team is reachable free of charge from Monday to Thursday from 8 a.m. – 12 a.m. and from 1 p.m. – 4³⁰ p.m. (CEDT) and on Fridays from 8 a.m. – 1 p.m.

Emergency Number

You can reach our emergency hotline from 8 a.m. – 10 p.m. under the number +43 7249 / 42811 - 900. Please consider to be charged € 30 in a 15-minute-pulse for the total expenditure. Please understand that we might not be able to answer your call immediately. Leave your name, company name, phone number and dongle or customer number on our mailbox to get a timely call-back (within the maximum of one hour) and the best possible support.

2 OPERATING CONDITIONS

In order to guarantee proper operation make sure that the following operating conditions prevail for the Avio Master.

When you receive your Avio Master, place it in the environment where you will install it. Leave the device in its shipping crate at its final destination for 12 hours and do not connect it to the power supply! This resting period prevents thermal shock and condensation.

An ambient temperature range of 21 °C (69.8 °F) to 23 °C (73.4 °F) is optimal for server reliability; the Avio Master is applicable in the range from 0 °C to 40 °C (from 32 °F to 104 °F) of ambient temperature. The cooling of the Avio Master is done by the cooling fins of its case. Be sure that the generated thermal energy can be transferred into the air, so never place an Avio Master on top of another one. Keep a distance to other devices of at least 5 cm to allow air circulation. It is also important that the exhaust air of other devices do not stream against the Avio Master.

Ambient relative humidity levels between 45 and 50% are the most suitable for data processing operations in order to:

- ✓ Prevent corrosion (occur in surroundings with high relative humidity)
- ✓ Help avoid failures by the intermittent interference from static discharges (occur in surroundings with low relative humidity)

3 TECHNICAL DATA

Processor:	Intel Celeron N2930 4-Core-CPU 2,16 GHz 2MB
Central memory:	8 GB DDR3 1600 LV SO-DIMM
Dimension:	116 x 65 x 110 mm (4,57 x 2,56 x 4,33 inch)
Weight:	0,76 kg (1,68 lbs)
Specifications:	CE, FCC, ErP
Power consumption:	8 - 36 W
Recommended ambient temperature:	0 – 40 °C
Recommended relative humidity:	45 – 50%
Operating system:	Windows 7 Embedded with a custom-built desktop user interface

Ambient Temperature

Relative Humidity

4 DEVICE VIEWS AND PORTS

4.1 FRONT VIEW

- Power Button ①
- Blue Power LED ②
- COM Port (RS232/422/485) ③
- USB 3.0 Port ④
- USB 2.0 Port ⑤



4.2 REAR VIEW

- Kensington Lock ①
- Cooling Fins ②
- 9V~24V DC-IN ③
- Audio Line Out ④
- HDMI 1 ⑤
- HDMI 2 ⑥
- 2x USB 2.0 Ports ⑦
- 2x RJ-45 LAN Ports ⑧



Details to ②: The cooling fins act as passive cooling for the dustproof case.

Details to ④: Realtek® ALC887 8-Kanal High Definition Audio

Details to ⑤ and ⑥: Intel® HD Graphics (onboard) with a maximum resolution of 1920 x 1200 pixels at 60 Hz

Details to ⑧: 1 GBit/s LAN Intel® 82583V

4.3 AVIO MASTER QUICK START

The Avio Master is pre-installed and pre-configured and allows very quick starting:

1. Connect a display to one of the HDMI outputs and turn the display on.
2. Connect keyboard and mouse to the USB ports at the front or back.
3. Use the provided power adapter to connect the Avio Master to the power supply system. The Avio Master will start automatically (the blue power LED will light up). If it does not start automatically, press the power button with the help of a pointed item.
4. By default the Avio Master starts with the custom-built desktop user interface (see next chapter).

5 THE DESKTOP USER INTERFACE

The Avio Master offers a well-arranged and functional desktop that comprises buttons for the most important functions:

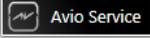
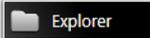
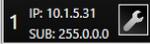


Use the three large icons *Wings Touch*, *Avio Manager* and *Wings Vioso* to start the Wings AV Suite applications with the same names. If windows are open and cover up the large icons you can start the applications via the small icons in the bottom right corner or use the following shortcuts:

-  + T: Opens a new Wings Touch window
-  + M: Opens a new Avio Manager window
-  + W: Opens Wings Vioso
-  + S: Opens the Avio Service menu
-  + Ctrl: Opens the Avio Master's settings dialog
-  + E: Opens a file explorer window
-  + D: Shows the desktop user interface

Mousing-over the help symbol  in the top right corner of the desktop user interface displays a list of these and other specific shortcuts.

The other buttons have the following functions:

	<p>Opens the user guide of the Avio Master in a PDF viewer. Mousing-over this symbol displays a list of shortcuts.</p>
	<p>Opens the Avio Service menu (see section <i>Wings Avio Service</i> in the Wings Vioso help topics for further information).</p>
	<p>Opens a file explorer window.</p>
	<p>Opens the settings dialog that offers shortcuts for the most important dialogs, shows the Wings Vioso program options and options for restart and shutdown.</p>
	<p>Shows the IP address and subnet mask of the Avio Master's network cards, if a connection to a network is established. If the Avio Manager is connected to networks on both LAN ports, two entries will be shown. By clicking the wrench symbol  you can edit the network settings in the opened dialog:</p> <div data-bbox="683 920 1390 1559" data-label="Image"> </div> <p>If you have to make additional settings that you don't find in this dialog, use the button <i>Advanced Settings</i>, which will open Window's default network dialog.</p>
	<p>This button is used for safely removing external drives and appears as soon as an external drive is connected to the Avio Master via USB. After clicking the button a dialog with a list of external drives appears. Click one of the <i>Eject</i> buttons or the <i>Eject All</i> button for the desired operation.</p>

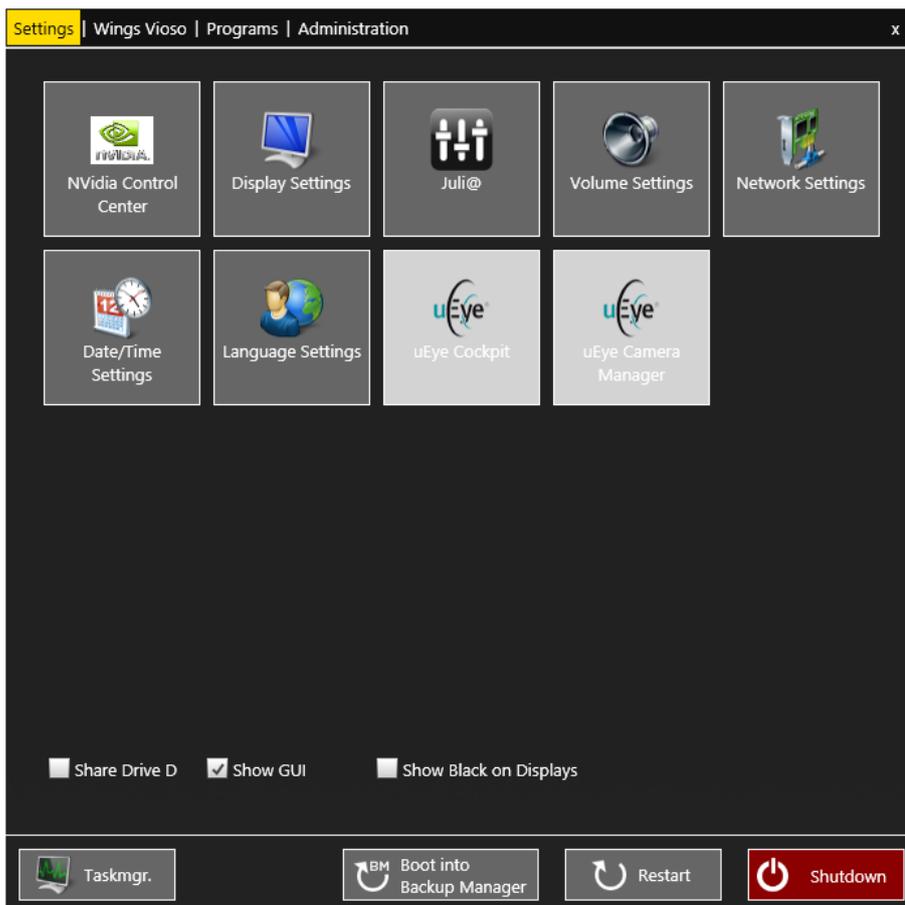
6 THE SETTINGS DIALOG

Click the *Settings* button  on the bottom left position of the desktop user interface to open the settings dialog. It allows access to virtually all relevant configuration dialogs of the Avio Master. This dialog offers the four parts *Settings*, *Wings Vioso*, *Programs*, and *Administrator*. At the bottom there is a fixed bar with the buttons *Taskmgr.*, *Boot into Backup Manager*, *Restart* and *Shutdown*. The button *Boot into Backup Manager* allows you to boot directly into the Backup Manager without having to select the right entry in the boot menu during the Avio Master's startup sequence.

6.1 SECTION *SETTINGS*

In this section there can be up to 20 buttons. Their content and function can be differently configured depending on the delivered device.

By clicking the buttons *Display Settings*, *Volume Settings*, *Network Settings*, *Date/Time Settings* und *Language Settings* the default dialogs for those Window functions appear. For a camera based calibration of a Wings Vioso projection the buttons *uEye Cockpit* and *uEye Camera Manager* are available.



In the lower part of this section three checkboxes are shown: *Shared Drive D*, *Show GUI* and *Show Black on Displays*.

Share Drive D

Show GUI

Show Black on Displays

By activating the checkbox *Share Drive D* you can share the media drive D for network access. The username for the shared media drive is *Wings*, the password is *Wings* as well.

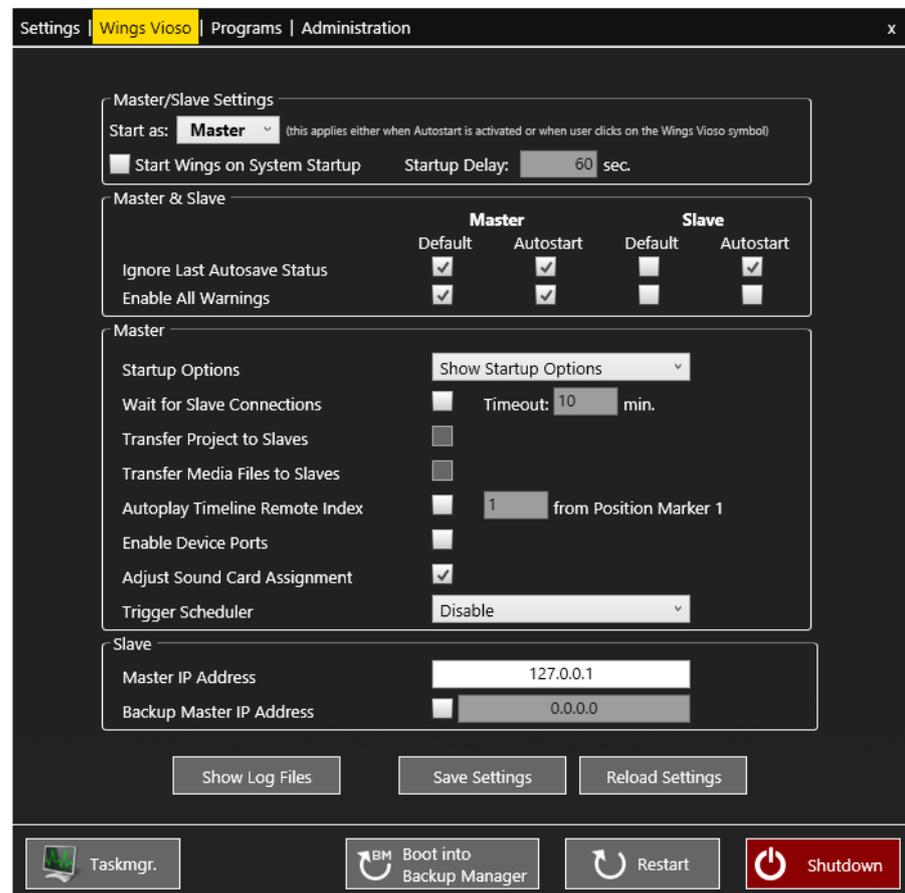
By activating the checkbox *Show GUI* the desktop user interface will be shown as familiar. Deactivating this checkbox will hide all user interface elements and will show a solid black background. By clicking the small monitor icon  at the top right corner the user interface will show up again.

The checkbox *Show Black on Displays* switches between a solid black background and the default Avio Master background on all slave displays.

6.2 SECTION WINGS VIOSO

Here you can define the options for the program start of Wings Vioso. They differ for master and slave mode, i.e. by choosing the correct start mode the appropriate configuration is loaded automatically.

In the combo box you can switch between *Start as Master* and *Start as Slave*. Activate the checkbox *Start Wings on System Start* will automatically start Wings Vioso at system start in the selected Master/Slave mode. By setting a startup delay you can specify how long the start of Wings Vioso will be delayed after starting up the system. A startup delay can be reasonable to give the Avio Master enough time to build up all connections and start all internal services before starting Wings Vioso.



The area *Master & Slave* allows separate settings for master and slave mode. Moreover, by clicking and selecting the checkboxes under *Default* you can enter the parameters that are applied for a normal startup by clicking the desktop icons. The entries made at *Autostart* are applied if Wings is started automatically on system startup.

In the area *Master* you can apply the following settings:

In *Startup Options* you can choose whether a project and which one has to be opened automatically:

- *No Action ...* opens only the Wings Vioso program
- *Show Startup Options ...* opens the dialog box for selecting projects, templates and the Project Wizard
- *Open Last Project ...* opens the project edited last
- *Open Following Project ...* opens the specified project

Wait for Slave Connections is an important function for automatic multidisplay presentations. With *Timeout* you can specify the maximum period the master is waiting for the slaves. Data transfer to the slaves is to start as soon as the connection to the slaves has established but at the latest after the timeout has expired. This period should allow the slaves to safely establish a connection with the master.

Transfer Project to Slaves transfers the project to the slaves after the timeout period specified above has expired. If a slave within the network is not active, the project is still transferred to all the other slaves. This function can only be selected if *Wait for Slave Connections* has been activated.

Transfer Media Files to Slaves as above, but only the corresponding media files required by a slave are transferred, i.e. only the data minimum is transferred. If a slave within the network is not active, all other slaves are still supplied with data. This function can only be selected if *Wait for Slave Connections* has been activated.

Autoplay Timeline Remote Index automatically starts the presentation in the timeline with the specified remote index at the position marker with remote index 1. If the specified timeline and the position marker with the remote index 1 are not available this action cannot be executed.

Enable Device Ports ensures that the device ports are enabled for a project to be auto-started after the Wings Vioso startup. See also the subject *Enable Device Ports* in the Wings Vioso help system.

Area Master & Slave

Area Master

Wait for Slave Connections

Transfer Project to Slaves

Transfer Media Files to Slaves

Autoplay Timeline
Remote Index

Enable Device Ports

Adjust Sound Card Assignment

Adjust Sound Card Assignment makes sure that the current allocation of sound card outputs is not altered by Windows, e.g. due to faulty sound card detection.

Trigger Scheduler

Trigger Scheduler is for enabling and disabling the Trigger Scheduler (which is available with Wings Pro license and up, not supported by additional licenses):

- *Disable* disables the Trigger Scheduler
- *Enable Always* enables evaluation of conditions and executes the triggers that fulfil these conditions. See also *Trigger functions* in the help system of Wings Vioso.
- *Restore Last Exit State* restores the state that was active when the program was exited last.

Area Slave

Under *Slave* you can select the following options:

- After choosing *Slave* in the dialog above you can enter the master IP address at *Master IP Address*.
- If you enable *Backup Master IP Address*, you can specify a second master as backup machine. Should the first master fail, the slaves will automatically connect themselves with the backup master.

Show Log Files

By clicking the button *Show Log Files* the content of the Wings log file will be shown.

The settings in the area *Master* and in the area *Slave* correspond to the Wings options (see *Global Options > Program Start* and *Network* in the help system of Wings Vioso). After settings the options you can save them by clicking the button *Save Settings*, thus the options are used by Wings at the next Wings start. Click *Reload Settings* to read the settings made in the Wings Options. This is usually done automatically when the dialog is opened, making any manual loading usually unnecessary.

6.3 SECTION PROGRAMS

This section offers different essential or useful programs to be started by clicking the buttons. Some programs offer an *Autostart* checkbox. Activating it lets the program start automatically on the system startup.

LUA Development Tools: opens the LUA Development Tools in order to write Avio Scripts.

TeamViewer: opens the dialog for remote support and maintenance. Clicking and checking the *Autostart* checkbox starts TeamViewer along with the system and allows access at any time via the internet (a valid network connection with internet connectivity given).



Ultra VNC Server: starts the Ultra VNC Server to allow remote support on the local network. You can activate the *Autostart* checkbox to offer this remote support functionality on system startup.

Ultra VNC Client: opens the Ultra VNC Client dialog to remotely control another PC (a running Ultra VNC Server given) in the local network.

Notepad++: opens the text editor Notepad++ which supports syntax highlighting, search and replace functions and many more functions.

Firefox: opens the preinstalled web browser Mozilla Firefox.

Calculator: opens the Windows calculator.

7-Zip: opens the file archiving program 7Zip.

VLC Player: opens the VLC media player.

Media Info: opens the Media Info tool, which also is available in the context menu by right-clicking a media file in Windows Explorer.

Process Explorer: opens the process monitor for monitoring system processes.

Video Card Stability Test: opens the graphics card test program.

BlueScreenView: opens the analytical tool for system crashes.

CPU-Z: opens a hardware analysis tool.

Crystal Disk Mark: opens a hard disk analysis tool which is also suitable for SSDs.

Prime95: opens the CPU and RAM test program.

DPC Latency Checker: opens an analytic tool for driver latency determination.

6.4 SECTION ADMINISTRATOR

This section is password protected and only accessible to support staff.

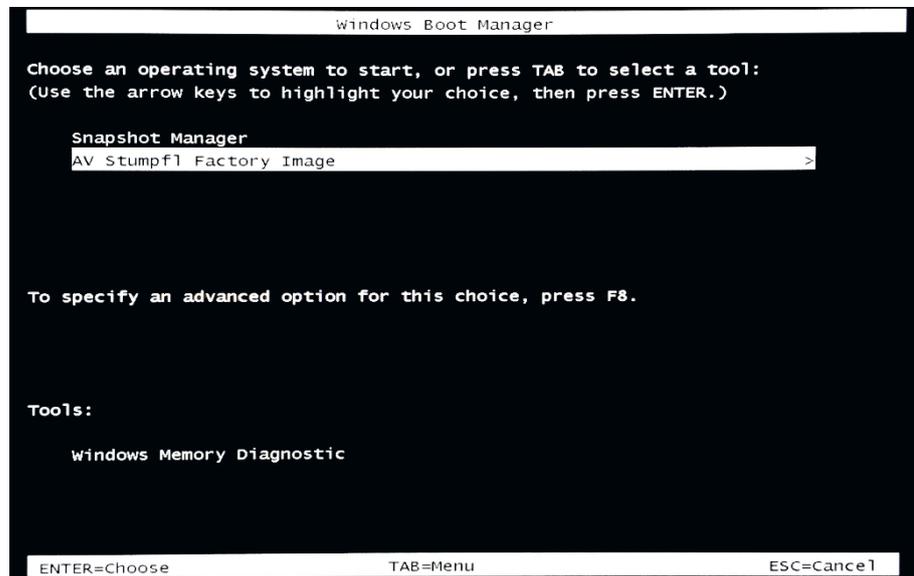
7 THE AV STUMPF1 BACKUP MANAGER

In Wings Engine Backup Manager various system conditions, so-called “snapshots” can be saved. This means that you can make your system settings and then create a backup version. You can create various snapshots with different settings and quickly switch between the snapshots then. It is also possible to “freeze” a system condition to ensure that any modifications are undone at the next system start and the settings correspond to the “frozen” condition.

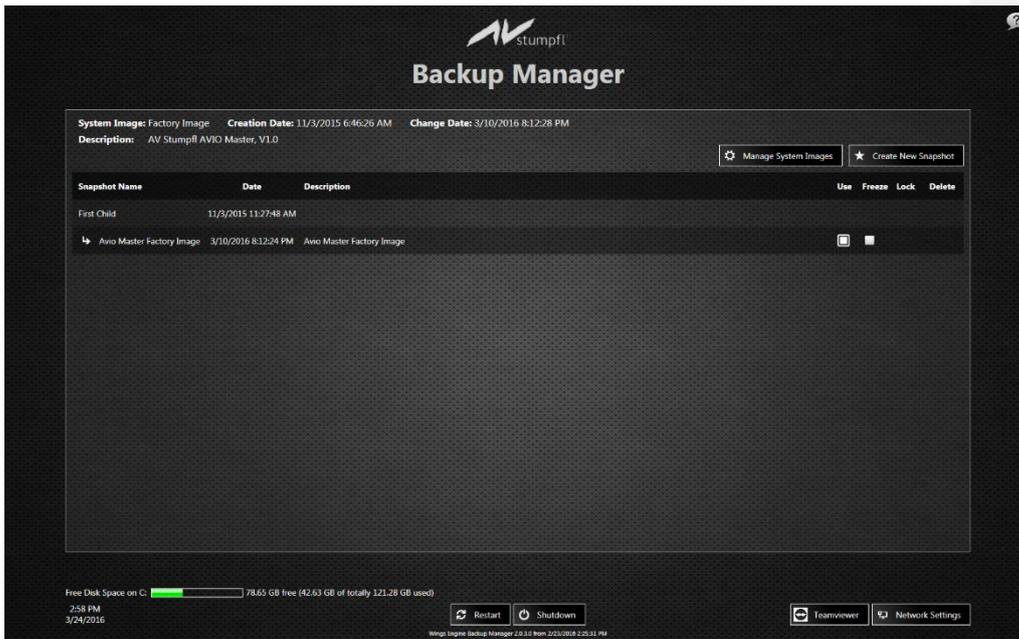
7.1 STARTING THE BACKUP MANAGER

During the booting process and after displaying the bios info the list for selecting of two available boot entries appears for three seconds:

Boot Screen



Select the entry *Snapshot Manager* and press the *Return* key which then lets the system boot into the Backup Manager.



The system initially comes with two snapshots: A *First Child*, which cannot be edited and corresponds to the factory setting, and derived from the First Child the *Avio Master AV Stumpfl Factory Image*, which is the first editable snapshot.

Snapshot Name	Date	Description
First Child	11/3/2015 11:27:48 AM	
↳ Avio Master Factory Image	3/10/2016 8:12:24 PM	Avio Master Factory Image

7.2 CREATING A NEW SNAPSHOT

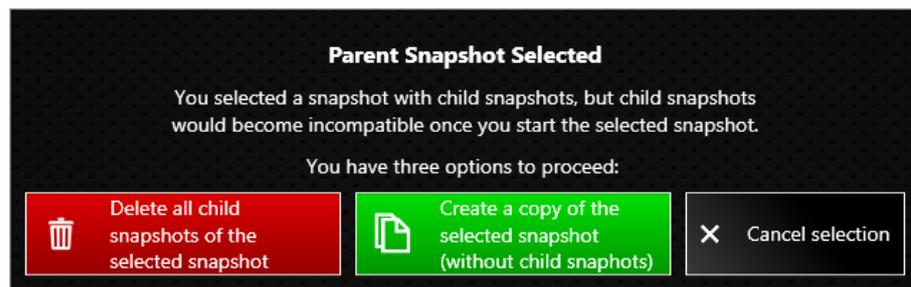
Use the button *Create New Snapshot* to create a new snapshot. In the opened dialog you'll have to provide a snapshot name and description. In the combo box *Parent Snapshot* you'll have to select a snapshot that passes its settings to the child snapshot. Every child snapshot saves just the differences to its direct parent snapshot, which leads to a substantial minimization of storage resources.

With the Checkbox *Use as default* you select whether the new snapshot should be used on the next system startup. This option can also be changed

in the Backup Manager's list view of all snapshots by activating the checkbox in the *Use* column for the desired default snapshot.

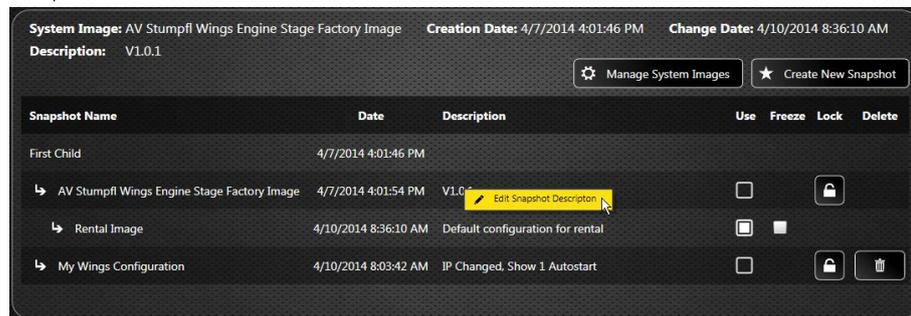
7.3 SELECTING A SNAPSHOT

By selecting the *Use* checkbox you can choose the snapshot to be used as default, which then will be shown as second entry in the boot menu at the system start (beyond the Backup Manager boot entry). Should you have selected a snapshot with one or more child snapshots you are asked whether you want to create a copy of the selected snapshot or whether you want to delete all child snapshots (because otherwise they would be invalid).



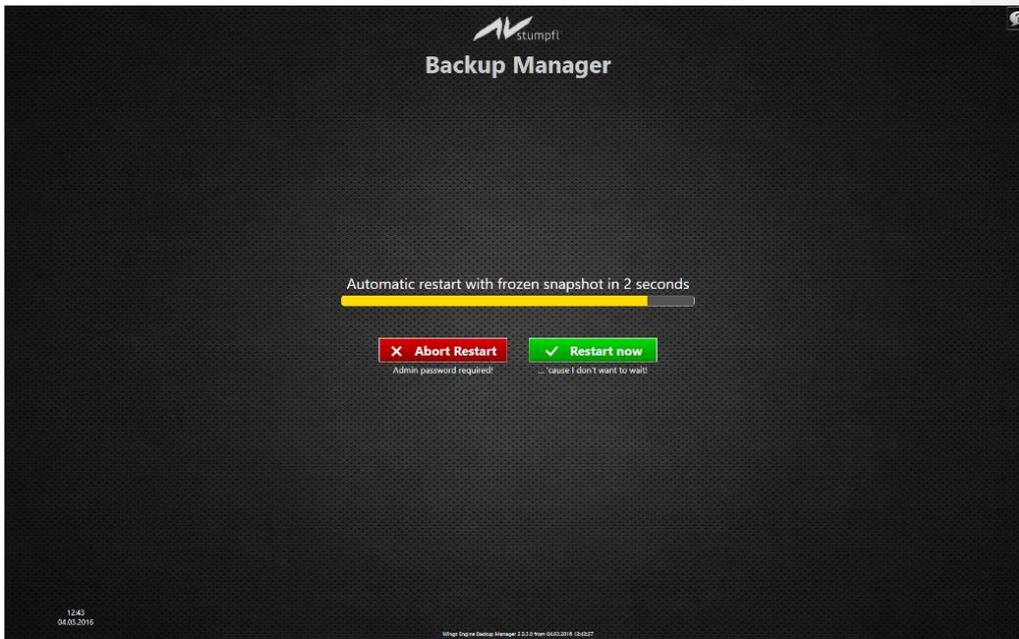
7.4 CHANGING THE SNAPSHOT NAME OR DESCRIPTION

By right-clicking the snapshot description or name you can change the description or name.



7.5 FREEZING A SNAPSHOT (DISALLOWING ANY CHANGES TO IT)

Snapshots can be frozen by activating the *Freeze* checkbox. This means that any modification to the frozen snapshot are made undone at the system restart. During a restart of the Avio Master the Backup Manager is started first to resume the frozen condition and only then the system is started in frozen state again. To quit this state you need to abort the restart in the Backup Manager by clicking the *Abort Restart* button and then *defreeze* the snapshot by unchecking the *Freeze* checkbox. For permanent installations this freeze function may be quite useful to ensure that the system always starts with the same settings.



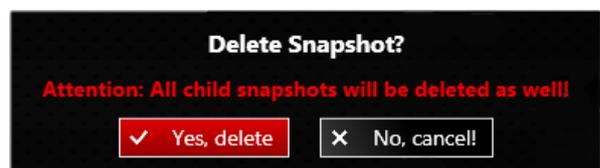
7.6 LOCKING A SNAPSHOT

By selecting the *Lock* button  you can lock a snapshot. After entering a password this snapshot can no longer be selected or deleted. The snapshot can only be unlocked again by clicking the *Lock* button and entering the password. A locked snapshot can be recognized by the red lock button .

The snapshot can also be unlocked entering the administration password, which is *AVStumpfl* in the delivery state. It is therefore advisable to change the administration password as described in chapter 7.8, *Backup Manager Administration*.

7.7 DELETING A SNAPSHOT

Use the *Delete* button  to delete snapshots that are no longer needed. If there are any snapshots that refer to the snapshot to be deleted the child snapshots will be deleted as well. You will be informed about that in the fly out dialog that appears on your delete request:

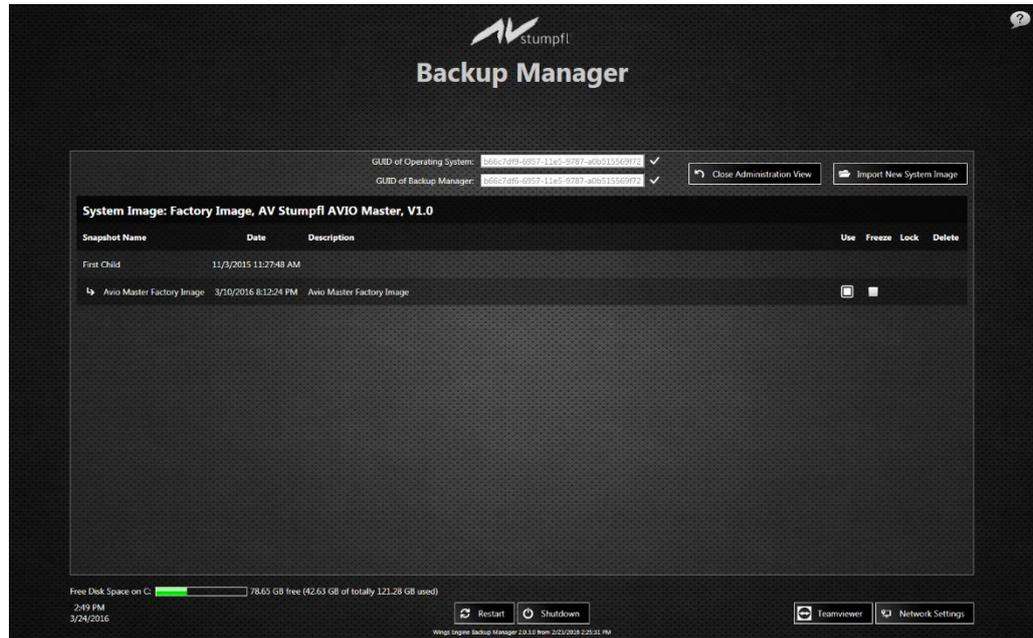


7.8 BACKUP MANAGER ADMINISTRATION

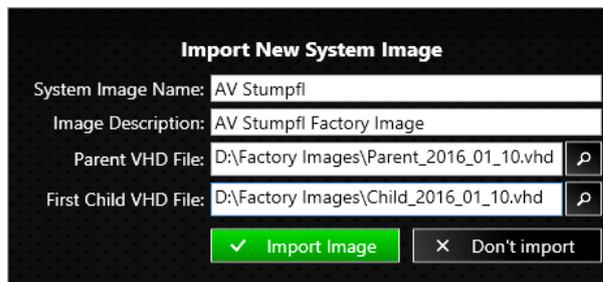
Click the button *Manage System Images* to open the administration view and to import a system image (file with *.vhd as file extension).

öffnen Sie die Administrationsseite, mit welcher Sie ein System-Image (Datei mit der Endung *.vhd) importieren können. The GUID of the Backup Manager and the GUID of the current snapshot can be changed here as well.

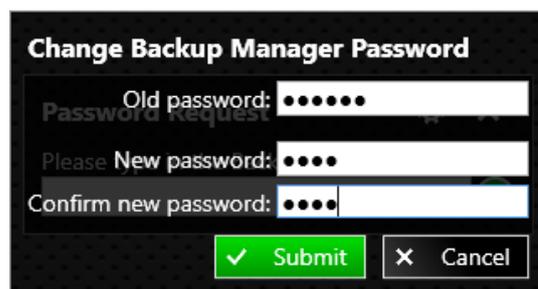
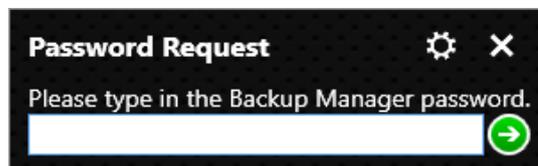
Changes to any of these GUIDs may prevent the system from starting correctly.



Click the button *Import New System Image* to import new system images delivered by AV Stumpfl.



The administration view is password-protected. The password is *AVStumpfl* in the delivery state. The password can be changed by clicking the gear icon .



7.9 THE TEAMVIEWER SUPPORT MODULE

Click the button *TeamViewer* to start the TeamViewer Support Module. It allows access to the Backup Manager by AV Stumpfl after providing the TeamViewer ID to the support person. This function can only be used with a working internet connection.

7.10 NETWORK SETTINGS

Click the button *Network Settings* to define the network settings for the Backup Manager. These network settings only refer to the Backup Manager and may differ from those in your system image.

Edit Network Settings Advanced Settings

Network Card: Ethernet (Controller der Familie Realtek PCIe ▾)

Use DHCP: **Current**

IP Address: 10 . 1 . 5 . 31 10.1.5.31

Subnet Mask: 255 . 0 . 0 . 0 255.0.0.0

Gateway: 10 . 0 . 0 . 253 10.0.0.253

DNS: . . . 10.0.100.1,10.0.100.2

General Settings:

Use Proxy:

Proxy Address: 10.0.0.253:3128

Bypass Local Addresses:

Proxy Address: <local>

8 TROUBLE SHOOTING

If the Avio Master does not start up correctly try starting it in secure mode:

1. Start the Avio Master and hit the F8 key whenever the display on the control monitor changes.
2. Select the option *Last Known Good Configuration (advanced)* and press *Enter*.

If the problem is not solved by applying these steps please contact our support team.