

airleader Measuring- and Simulation Server (MSS)

Version 3.1



Handbook dated 01.12.2025

System Requirements:

Hardware:

PC at least Dual Core,

2 GB minimum RAM, 4 GB RAM, 50 GB hard drive or larger.

Operating system:

Windows 7, Windows 11 and all Windows Server variants, Linux (separate setup)

Browser client side:

Edge, Firefox 15 or higher, Google Chrome

Browser must support HTML5 Canvas.

Popup blockers must be disabled.

Caching mechanism must be disabled (see Web Browser Settings)

Miscellaneous:

Micosoft Silverlight client side

Installation:

Log in as system administrator.

Under Win 7 it is necessary to shut down the User Account Control.

Start the installation program:

Airleader Simulation Server Setup V - ???. Exe and follow the instructions.

After successful simulation your internet browser starts with the start mask.

Click on a free session to start the application.

License:

The server comes with a session license. Additional session licenses can be reordered at any time. The maximum number of sessions is limited only by the hardware.

Without a license, the program can be used for 14 days.

The program can then be reactivated with a license key

Registration:

With your CD, you will receive a program number and a code that you need to unlock the full version.

To register the software, click on the "Register" link on the right side of the footer of the start screen.

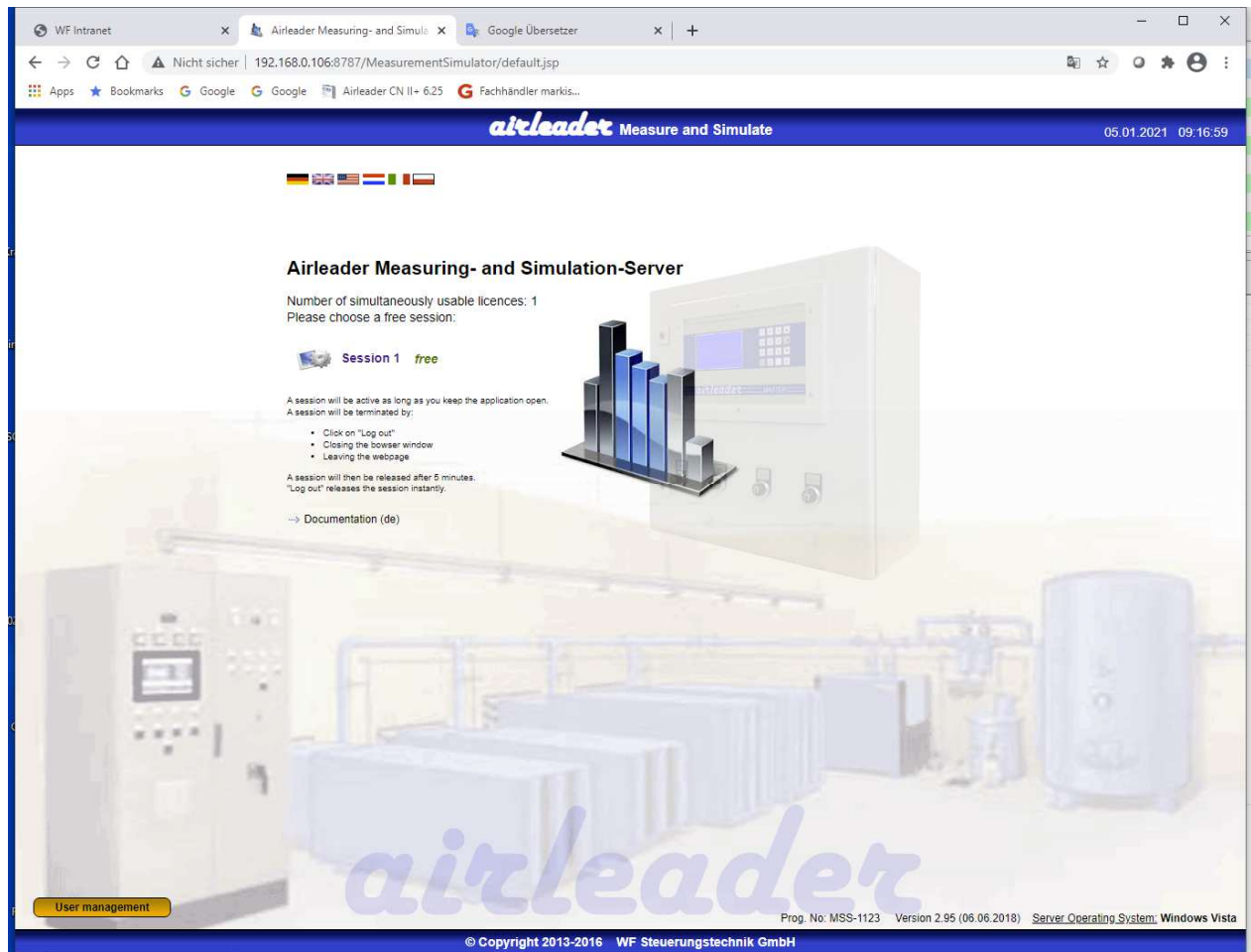
Enter the program number and the code in the following dialog and click on the button to confirm.

After that, the full version is unlocked.

Start Screen:

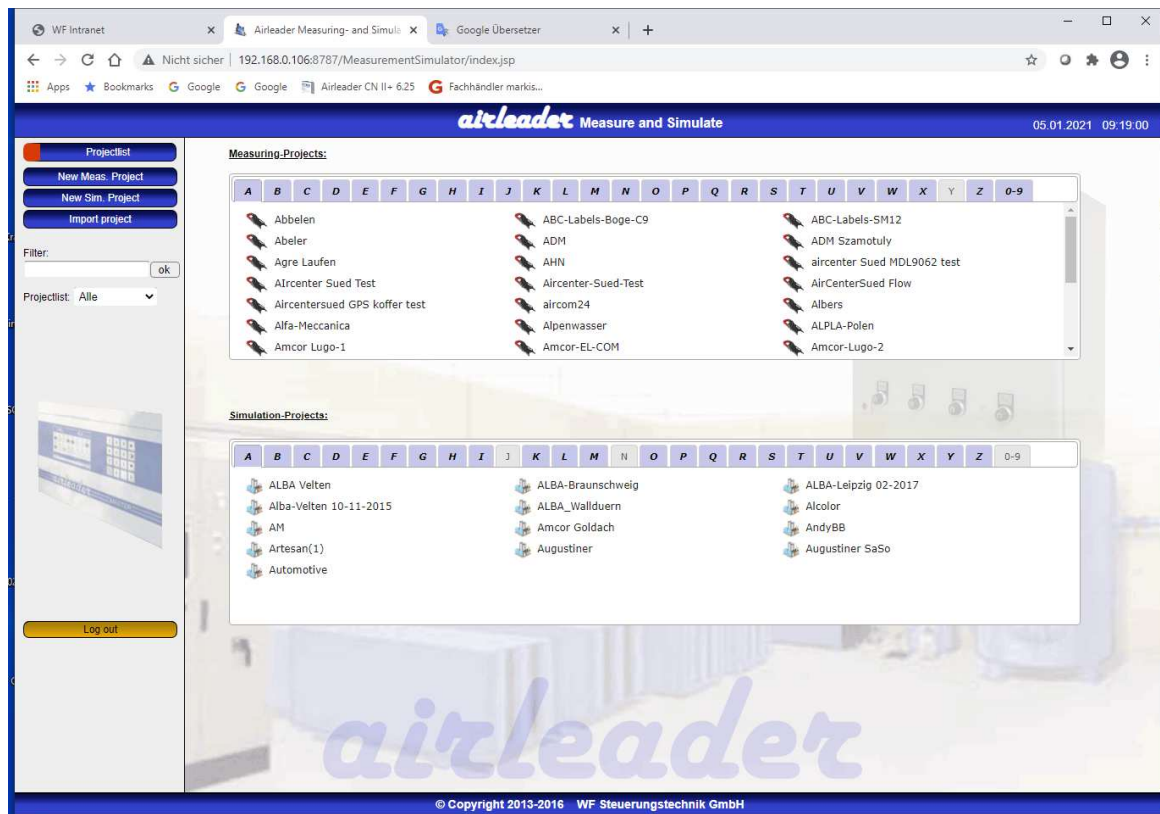
Double-click on the configured desktop icon to start your internet browser and open the start page of the measurement and simulation server named MSS. Because it is a web application, it is available throughout the network. For this, only the IP address or the name of the server computer must be known.

A call to `http: // server-ip: 8787` will take you to the homepage.



A click on a free session brings you to the project overview.

Project-overview:



The project overview is divided into:

- Measurement projects
- Simulation projects

You have the following options in the project overview:

- Selection of a measurement or simulation project

Click on the project name to go to the respective project.

- Creation of a new measurement or simulation project

Give your new project a name

All projects are managed in an alphabetically arranged tab system.

Create new project:



The screenshot shows a window titled "New project ...". Inside, there is a text box with the placeholder "Please enter a project name.". To the right of the text box are two radio buttons: "EU" (which is selected) and "USA". Below these elements is a blue button labeled "Create project".

Measurement project:

A measurement project represents the evaluation of a measurement using the AIRLEADER analog measurement case.

The MSS allows evaluations of simultaneous measurements with up to 4 analog measuring cases.

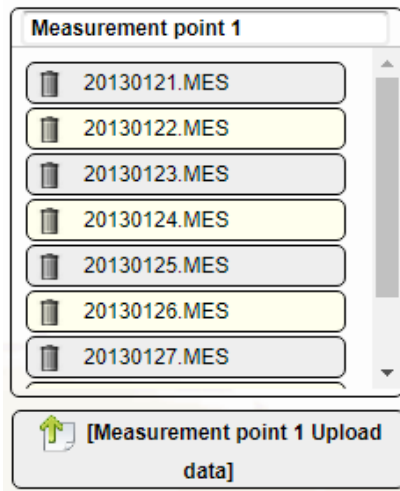
The following options are available to you in an evaluation:

- Upload the measurement data (separately for each measurement case) or directly from the measurement case via the network
- Reading and organizing the channels
- Evaluation of the data
- Definition of the load, idle standstill limits of compressors
- Printing the evaluation
- Creation of an AIRLEADER simulation

Advantages compared to the previous PC evaluation program:

- Greater accuracy
- Direct effect of the total consumption curve
- Joint data management
- Generation of simulations without further configuration work

Upload of measurement data:



Click on the link "Upload data" below the desired measuring point.
(e.g. from USB stick)

If the measuring case is connected via a network cable, the data can also be loaded directly from the measuring case.



Select the measurement data on your hard drive or USB stick and confirm this with the "Upload" button.

After a successful upload, the uploaded data will be listed in the measuring point.

Repeat this process for each measuring point if you have used several analog measuring cases for your measurement.

Read measuring data

Reading in serves to organize the connected sensors:

The channels of the current clamps (compressors) are sensibly assigned to the customer's compressor numbering.

After the data has been uploaded, it must be read in.

The fixed channels 1-8 of the measuring case are assigned to the virtual channels,

The compressors are assigned to channels 1-16 and the sensors to channels 17-32.

A channel can only be used once within a measurement.

AE1 = Analoginput 1 8

Select „K“ for Compressors on channel 1....16

Select „S“ for Sensor on channel 17....32

Evaluate:

When evaluating, the technical data of the measured components are given.

Basic parameters such as electricity price, measuring cycle and scaling are also specified here.

Basic parameters:

Input of all project data such as costs, location, total amount (default = total of all connected compressors + 10%), etc.

Compressor data:

Enter the compressor configuration data and measuring ranges

Station	AE 1-4	AE 5-8	AE 9-12	AE 13-16	AE 17-20	AE 21-24	AE 25-28	AE 29-32
Channel	Application							
1 [M1-1]	Variable speed compressor [A]	4mA	20mA	Unit	min-m3/min	Imin [A]	Voltage [V]	Load cos phi
	0,00	200,00	A	3,00	0,00	400,00	0,87	
	No sensor				max-m3/min	Imax [A]	Motor KW	Unload cos phi
	Compressor [A]				18,00	200,00	90	0,600
	Compressor [kW]							
2 [M1-2]	Compressor [A]	4mA	20mA	Unit	m3/min		Voltage [V]	Load cos phi
	0,00	200,00	A	10			400,00	0,88
	Title						Motor KW	Unload cos phi
	CS55						55	0,600
3 [M1-3]	Compressor [A]	4mA	20mA	Unit	m3/min		Voltage [V]	Load cos phi
	0,00	200,00	A	5,00			400,00	0,89
	Title						Motor KW	Unload cos phi
	S30						30,00	0,600
4	No sensor	4mA	20mA	Unit	m3/min		Voltage [V]	Load cos phi
	Title						Motor KW	Unload cos phi

Save

Sensor data:

Enter the type and measuring ranges of the additional sensors, such as pressure, dew point, flow, etc

Station	AE 1-4	AE 5-8	AE 9-12	AE 13-16	AE 17-20	AE 21-24	AE 25-28	AE 29-32
Channel	Application							
17 [M1-8]	Netpressure	4mA	20mA	Unit	Title			
	0,00	16,00	bar					
18	No sensor							
	Dewpoint							
	Temperature							
	Flow							
19	Extra pressure							
	Netpressure							
20	Ampere measuring (A)							
	Energy measuring (kw)							

Save

Please first parameterize all sensors in all relevant tabs, only then click on "Save". Saving immediately generates a raw evaluation and, depending on the amount of data, can take some time.

After successful evaluation, the data in the "Evaluated files" field are available for viewing and further processing, because:

In the following, the limit values for the ampere or kW measurements must be specified, for which at least one load-idle cycle is required for each compressor.

To do this, click on a suitable day of the analyzed files.

The generated raw evaluation diagram is displayed and additional navigation points for all sensors and current clamps involved in the measurement appear on the left.

By selecting an ampere measurement on the compressor, you get the following diagram,

in which you have to define the limit values for load / idling and standstill.

When measuring a frequency converter compressor, there are two green border lines for min load and max load.

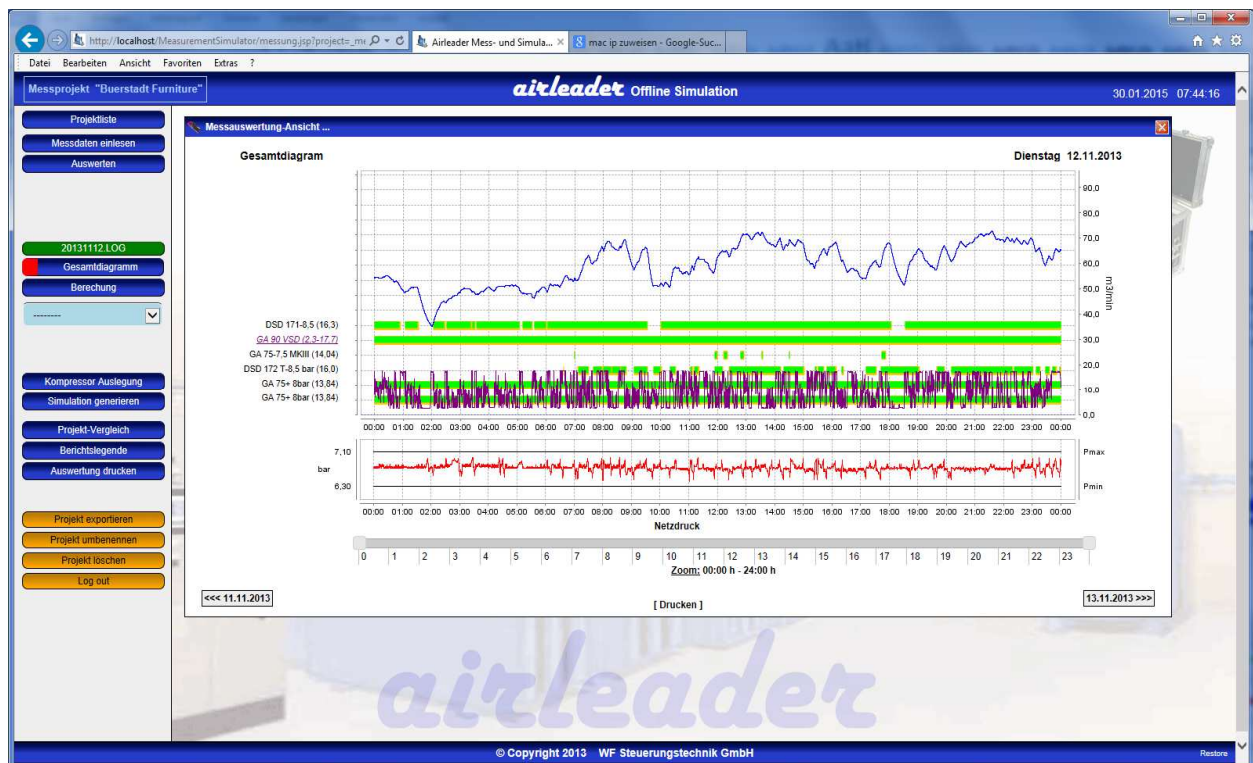
Please set the limit values accordingly. (Please bring the min-max load manually during installation so that the appropriate settings are possible)

Once the settings have been made for one day, click on "Data correction".

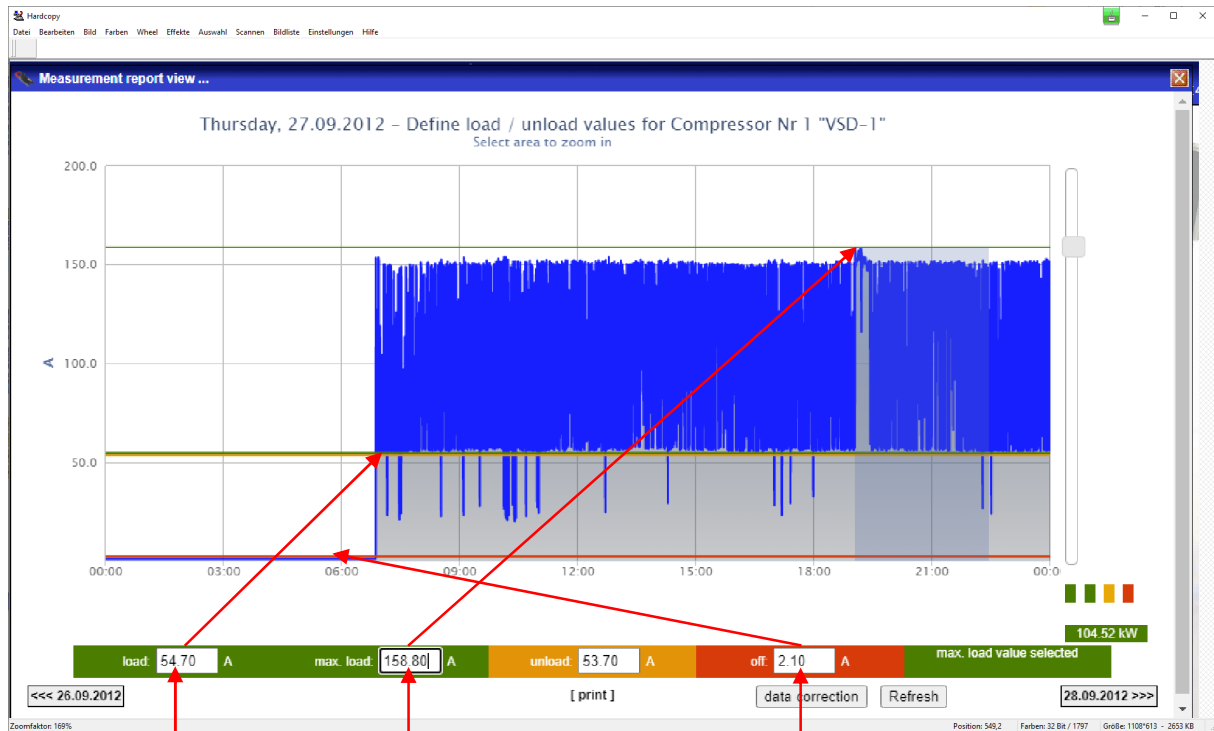
This means that all settings are adopted for all further measuring days.

Then check other days on a random basis and check the set limit values there as well. Correct the settings if necessary. (Don't forget to click "data correction")

Evaluation-Diagram:



Set load / idle and stop limit values for variable speed compressors:



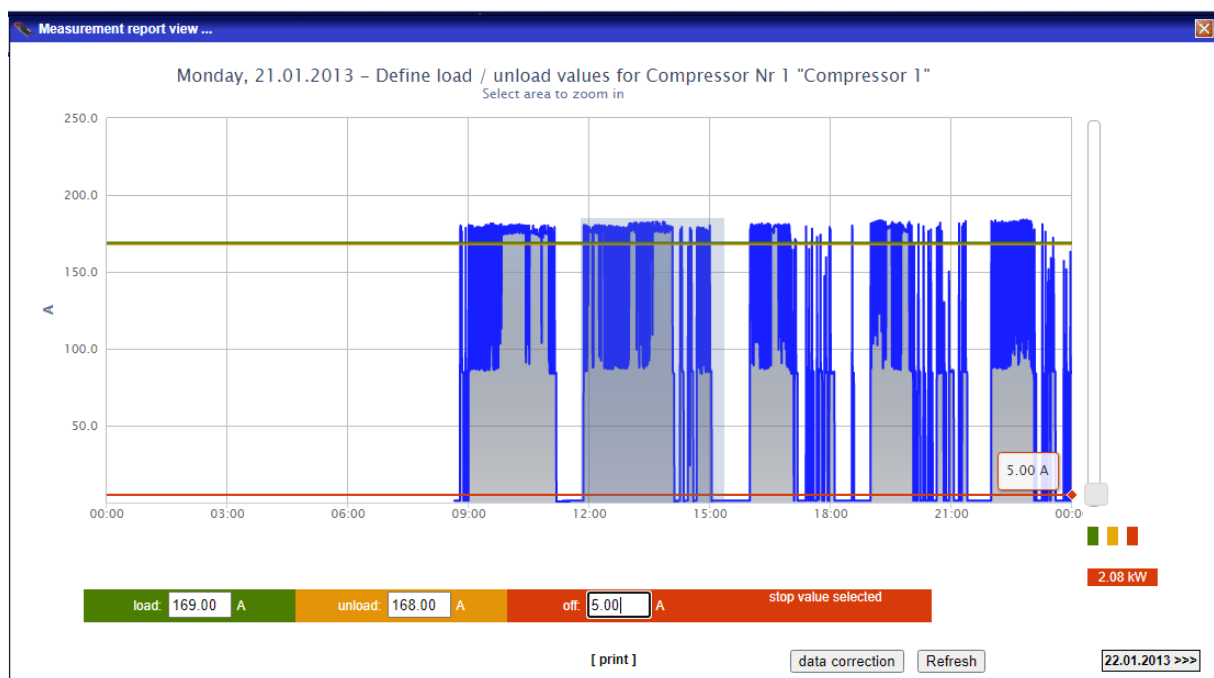
Min load setting

max load setting

stop value selected

If energy is in still standig mode higher

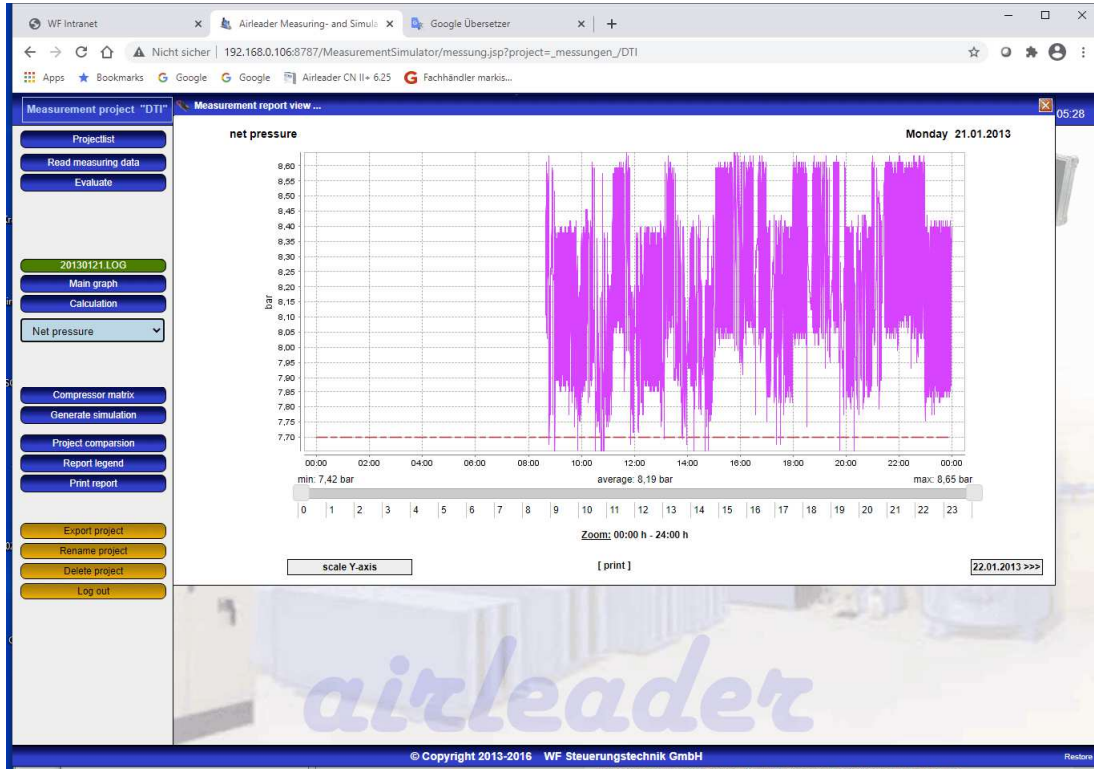
Than 0,0 A do setting 2 A higher as it is



Set load / idle and stop limit values for load/unload compressors:

If a pressure transducer has been defined as a network pressure, the diagram of the pressure curve can be viewed via the navigation point "Network pressure", and then click on a the format corresponding to the measurement.

Network pressure diagram:



Network pressure scaling:

Scaling - Google Chrome

Nicht sicher | 192.168.0.106:8787/s_0/mess_scaleAE.jsp?channel=1

scale Y-axis "net pressure "

min	7.70	[bar]
max	8.60	[bar]

save close remove scaling

A simulation of the measured station with an AIRLEADER master can be generated immediately from the measurement via the menu item "Generate simulation".

The complete measurement can be separated into diagrams, calculation value tables or can be printed out completely.

From version 1.2:

If no compressors were measured during a measurement, but only a flow measurement was made, this measurement can be taken over as consumption for the simulation.

The data are averaged over 5 minutes.

Simulation:

You have two options for creating a new simulation:

1. Via "New simulation project" in the navigation of the overview
2. From a measurement via "Generate simulation"

In the second case, the consumption data that were calculated in the measurement evaluation are used as

The basis for the consumption data has already been copied.

All data already generated in the measurement evaluation are also adopted

(Pressure band, electricity price, compressor data, etc.).

Base data:

All master data can be entered in the basic mask of the simulation.

The existing network volume can be entered here

minimum and maximum value of the pressure band

Pressure value at which the simulation starts

- receiver volume
- pMin, pMax
- Start pressure
- Electricity price Price per kWh

Scaling

Maximum scaling of the consumption diagram

Basis for the overall report when extrapolating to the year

- Operating time per year

Consumption data:

Consumption data is required for a simulation. These can be evaluated data from the

previous measurement case program, as well as their CSV exports, data from the AIRLEADER online visualization, or directly generated consumption curves. This can be done via the

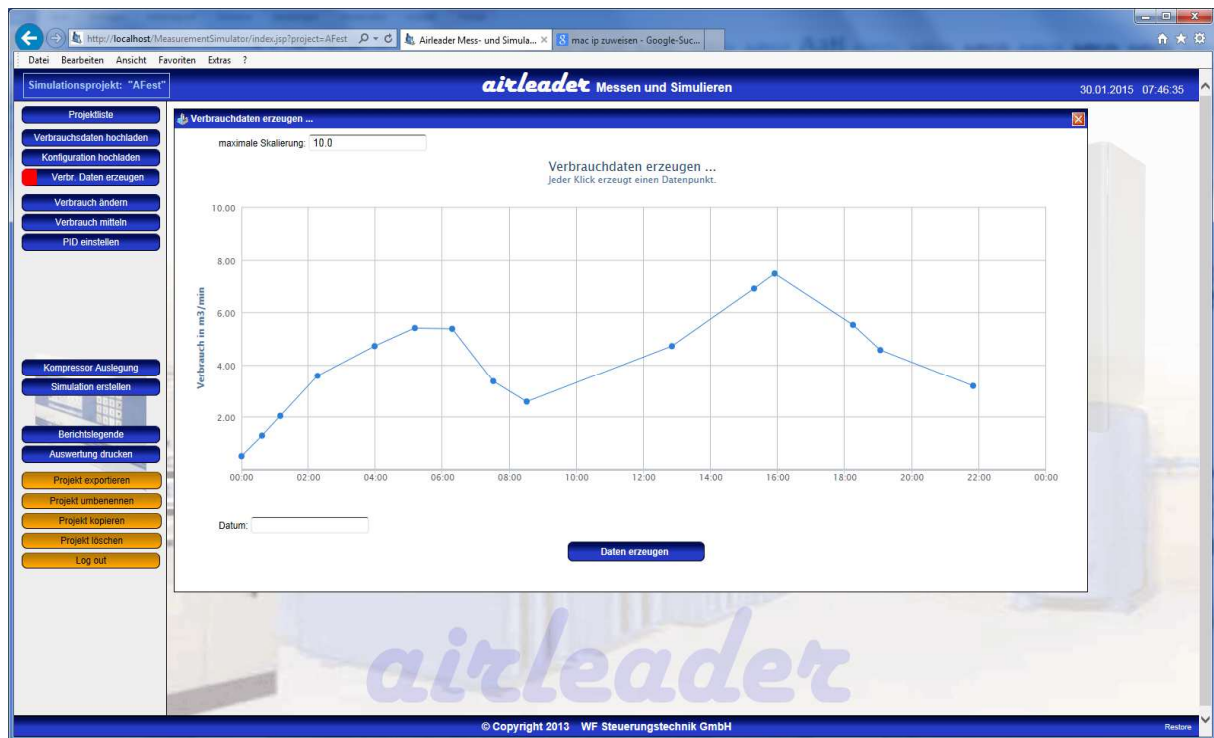
Button "Consumption Generate data ".average of consumption data:

In addition, consumption data can subsequently be averaged over 5, 10 or 15 minutes.

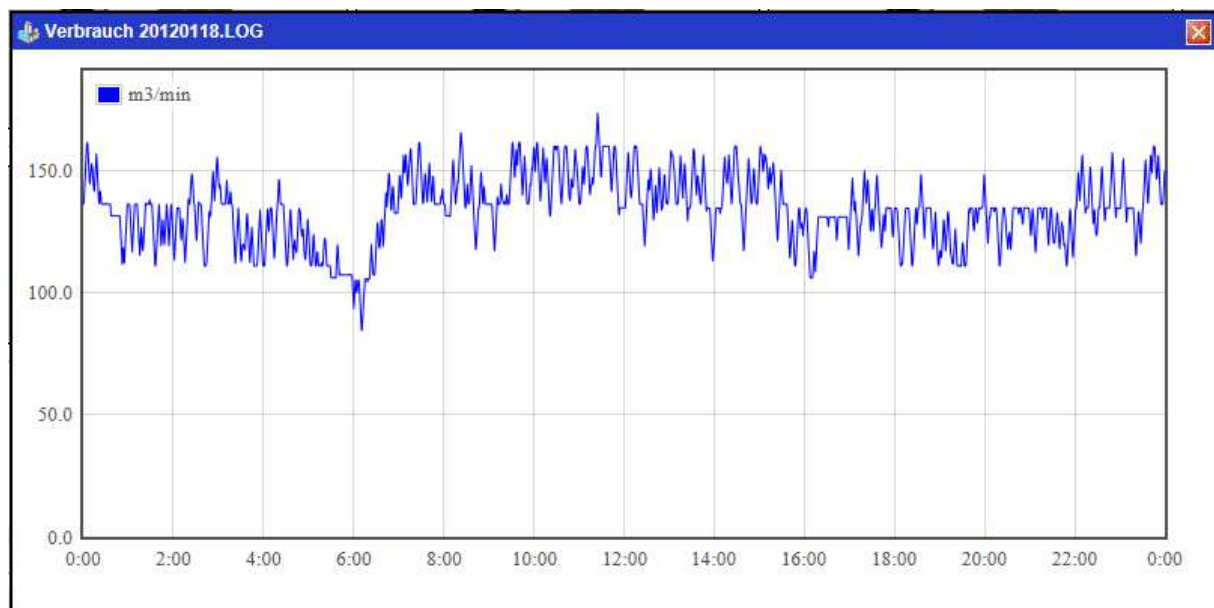
Average consumption

Consumption data change: Consumption data can subsequently be increased by a fixed amount or percentage or decreased.

Change consumption



If consumption data is available, upload it to the MSS project using Upload consumption data. Click a file to display its consumption curve.



Compressors
Next, define the compressors. MSS can simulate up to two variable-speed compressors.

Enter all compressor data here. Open this form by clicking one of the 16 compressors in the main project view.

Fields that do not apply to fixed-speed compressors are greyed out.

For variable-speed compressors, define the pressure setpoint, ideally at the midpoint of the pressure band.

Set the compressor priority. For quick changes, you can also do this directly in the compressor overview.



Compressor database
Save a named compressor configuration in the integrated database and retrieve it whenever required.

Kompressor 1	
VSD	☐ Ja ☒ Nein
Bezeichnung	
min. Liefermenge	3.0 m3/min
max. Liefermenge	0.0 m3/min
min. Last KW	0.0 kW
max. Last KW	0.0 kW
Leerlauf KW	0.0 kW
Nachlaufzeit	60 Sekunden
Regelbereich max	0.0 m3/min
Regelpuffer	0.0 m3/min
Volumenstrom min.	0.0 m3/min
Solldruck	0.0 bar
Rangfolge	1 ▼
Speichern Abbrechen Reset	

PID settings: _____

Click Set PID to open the PID controller form. Each variable-speed compressor can have separate PID settings. MSS calculates an initial configuration from the control range and system volume. You can adjust these settings at any time.

PID Einstellungen	
VSD 1	
Abtastzeit	1 Sekunden
Vorhaltezeit	1 Sekunden
Nachstellzeit	1 Sekunden
Proportional-Anteil	75
VSD 2	
Abtastzeit	1 Sekunden
Vorhaltezeit	1 Sekunden
Nachstellzeit	1 Sekunden
Proportional-Anteil	75
VSD 3	
Abtastzeit	1 Sekunden
Vorhaltezeit	1 Sekunden
Nachstellzeit	1 Sekunden
Proportional-Anteil	75
VSD 4	
Abtastzeit	1 Sekunden
Vorhaltezeit	1 Sekunden
Nachstellzeit	1 Sekunden
Proportional-Anteil	75
Speichern Abbrechen	

Use an existing configuration:

A simulation can use a configuration from the older measuring-case software (WF.DAT) or an Airleader online visualisation (CONFIG.CFG). Use Upload configuration to load the file into the MSS project. All settings are imported.

Create a simulation:

After completing the configuration, click Create simulation. Depending on the amount of data, this may take a few minutes.

Regenerate the simulation after every settings change for that change to take effect.

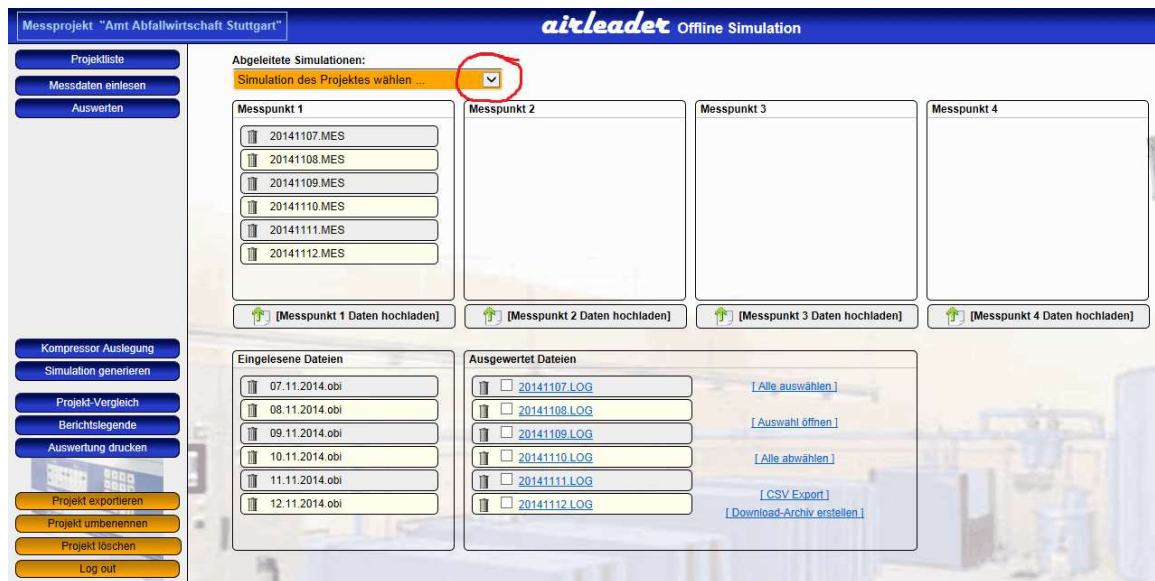
View and print the generated data on the Simulation data tab. You can also print a complete report for the simulation.

Copy a simulation:

To try different configurations, copy the simulation using Copy project. Make the required changes in the copy and generate that simulation again. You can rename a project at any time.

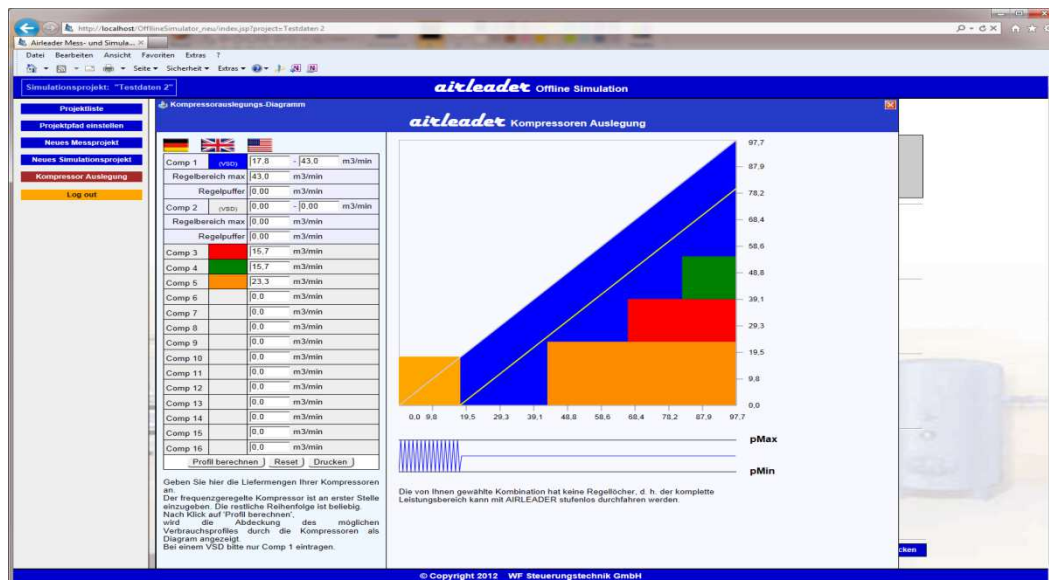
Simulations generated from measurements remain assigned to those measurements. They do not appear as separate entries in the simulation-project list; open them through the measurement project.

Likewise, simulation copies do not appear as separate projects in the project overview. Open them through the original project.



Compressor sizing:

Once at least one compressor has been defined, use Compressor sizing to display how the compressor combination covers demand. Any gaps in the control range are shown here.



Export or import a project: _____

From a measurement project or a standalone simulation project, export the complete project, including all simulations. Click Export project to create an archive with the extension wfpro.

Internet Explorer normally saves this file in your Downloads folder. The exported file can be imported elsewhere.

In the project list, click Import project.

In the dialog, enter a project name and select the wfpro file to import.

The project is then imported.



User management

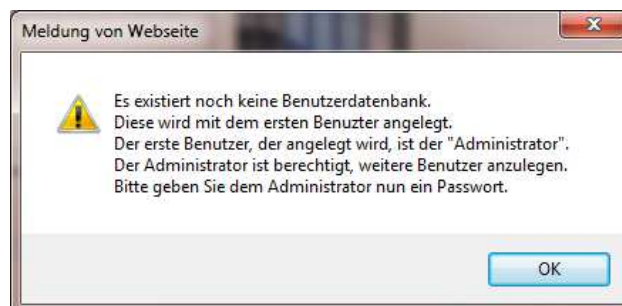
Version 1.2 introduces user management. You can continue using the software without it. When several people use the software, enabling user management is recommended.

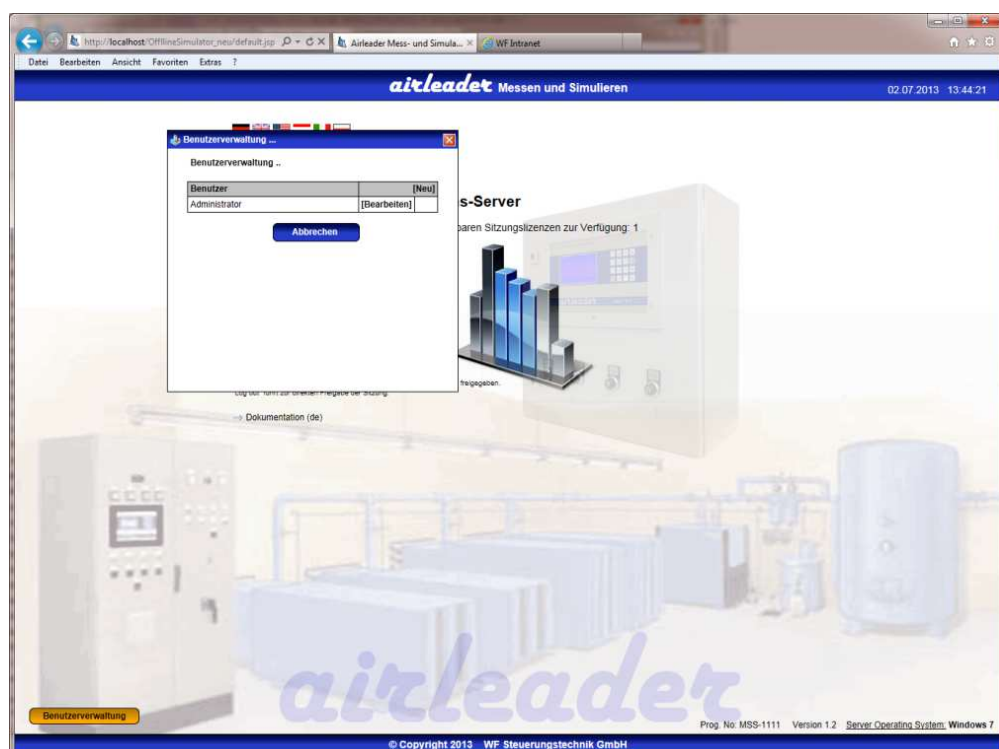
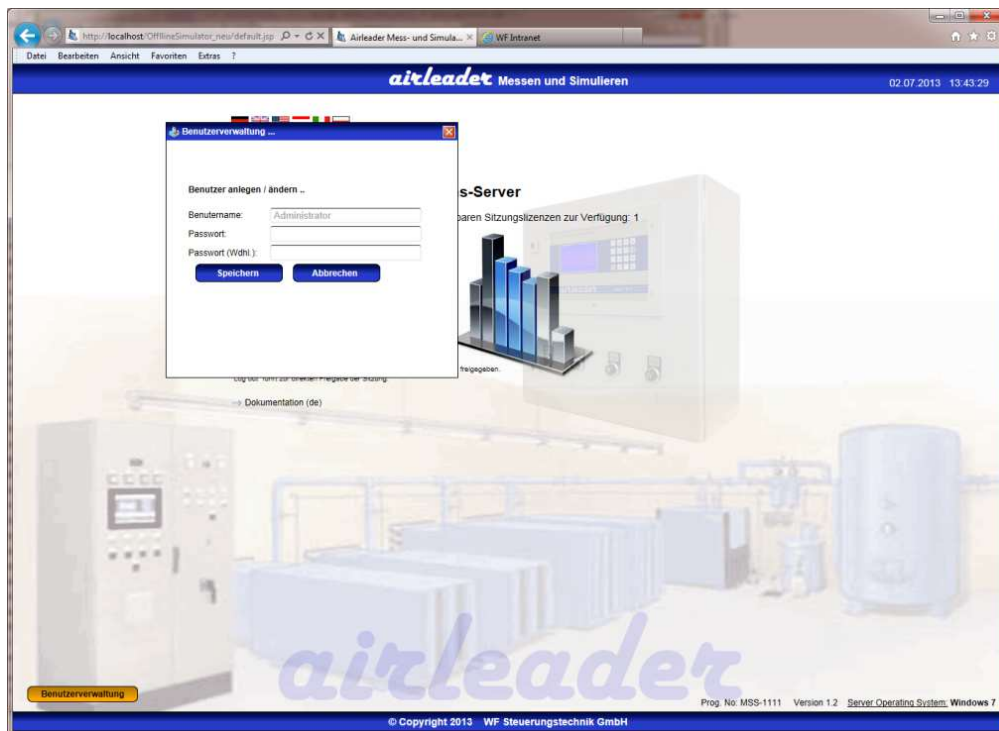
Users can then access only their own projects. The administrator, created as the first user, can access all projects, create and delete users, and reassign projects.

To enable this feature, click User management on the start screen.

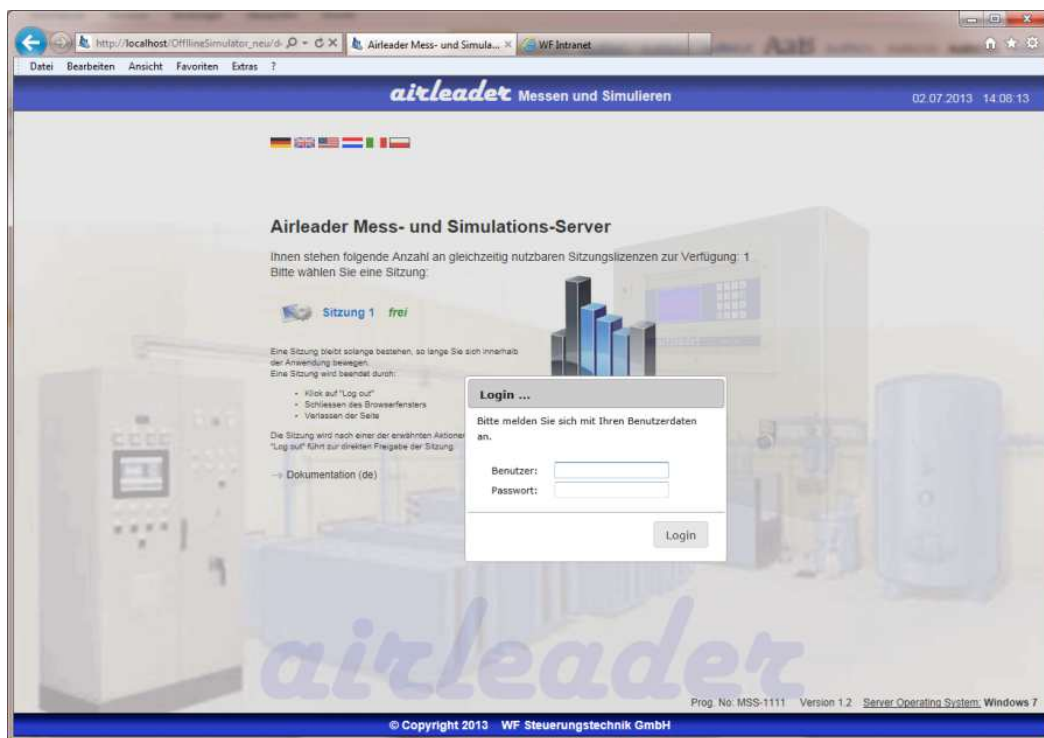


Enter a password for the first user, the administrator. This user has full system permissions and is the only user who can create further users.



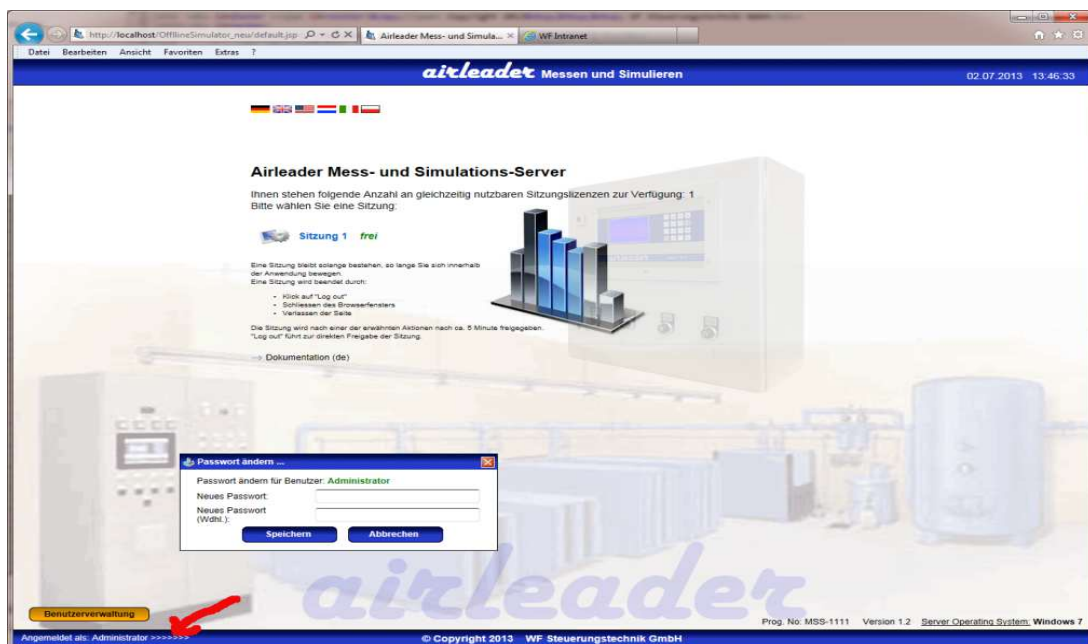


You can now create additional users. The first time you leave user management, the start screen prompts you to sign in with an account.



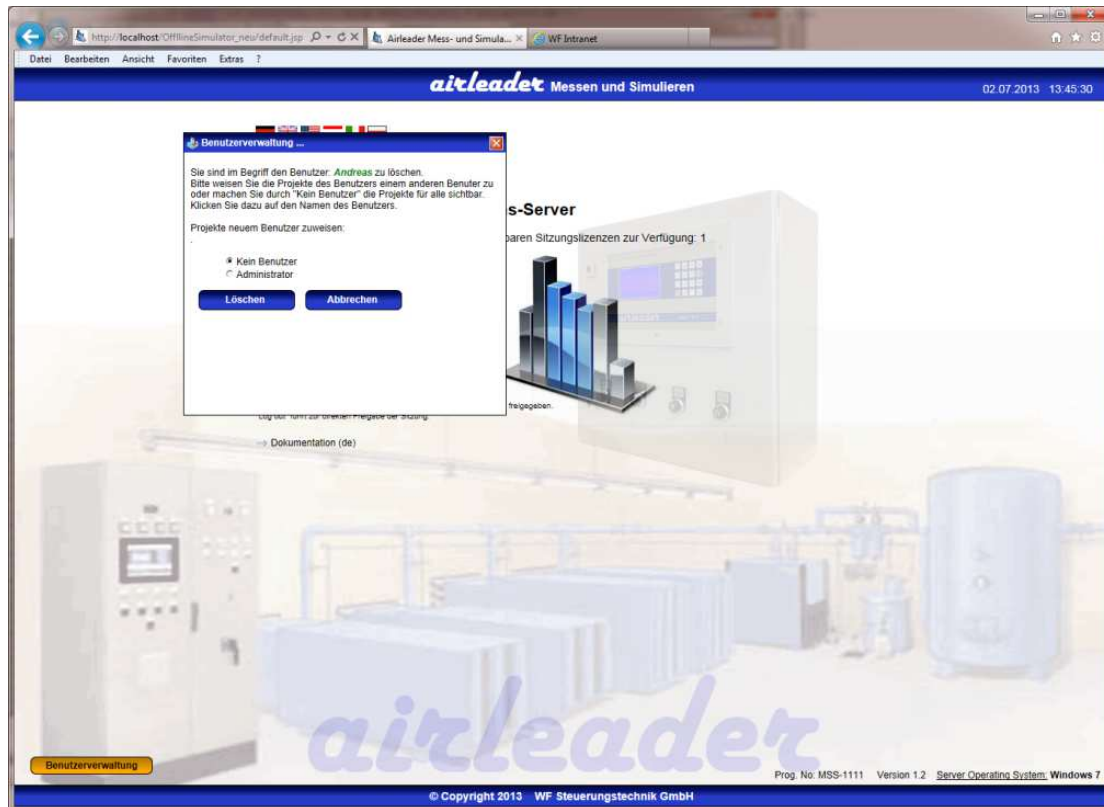
Change password:

After signing in, each user can change their own password at any time.



Delete a user

When deleting a user, assign their projects to another user. Alternatively, leave the projects unassigned; they will then be visible to all users. Projects visible to everyone are marked with a green star in the project list.



Assign a project

Within a project, the administrator can assign it to a user. The project is then visible only to that user and the administrator.

