

mScale is the mobile android app of DRALLE for the collection of timber data in forests. With this app, DRALLE offers data collection using classic collection methods according to cord and individual log measurement. All data collected in the forest with a mobile device can then be processed via the Dralle web server and used in connection with process logistics.



mScale manually records data that is measured or collected digitally and performs calculations in terms of volume and more. The GPS function of the mobile device documents the location. Based on colour panorama photographs taken by the user, the number of logs can be determined using photo-optical means. A sampling of diameters makes it possible to derive a distribution of diameters for piles.

Hardware requirements: Smartphone or tablet with an Android operating system – version 7.0 or higher, with a camera and GPS function

mScale does not measure data relating to length or volume; it only adopts and digitalises data collected manually in a user interface. The user is responsible for correctly determining manual pile or individual log data. The user assumes full responsibility for the data serving as a basis for all calculations provided for mScale.



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## 1.1 Installation of mScale

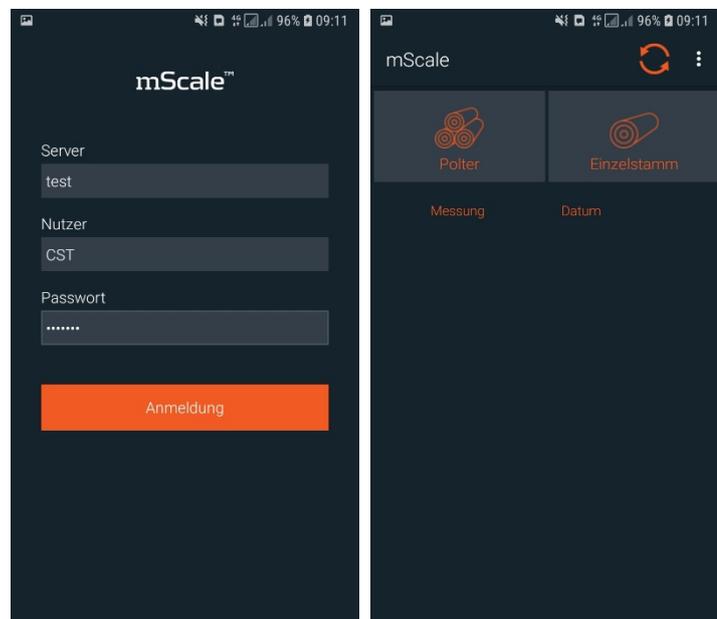
Go to google play on your device and search for 'mScale' or 'Dralle', or use this link:

<https://play.google.com/store/apps/details?id=dk.dralle.mscales&hl=da&gl=US>

Once the installation is done push 'open' and go to 1.2.

## 1.2 Registration of mScale - connect with the Dralle web server

- A stable Internet connection is required
- Click the mScale icon
- Enter the server name, user name and password (is assigned via the web server)
- It is possible work offline after logging in once
- Synchronisation with the server only occurs when connected to the Internet
- A "Logout" can be performed on the top right – you then have to log in again; the pile list can then be deleted.



## 1.3 Measuring stacks in 5 steps



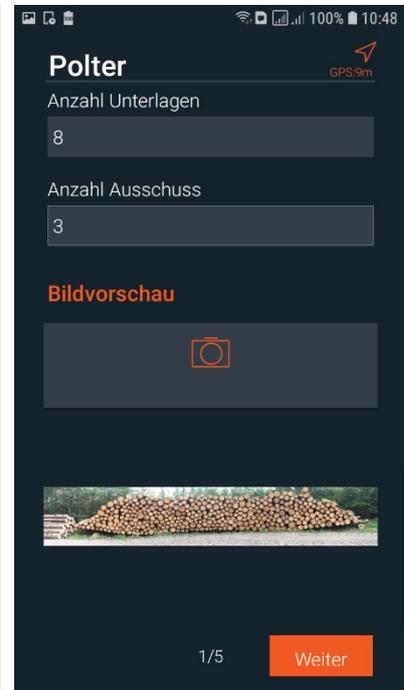
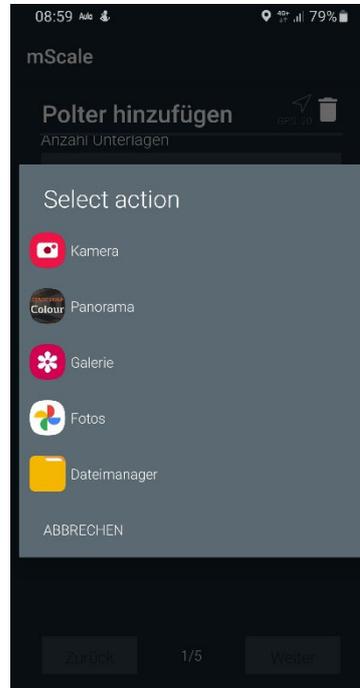
### Step 1/5: Basic data

Three screenshots of the Polter mobile application interface, showing the data entry process for a log stack. Each screenshot has a dark background and white text. The first screenshot shows the 'Grunddaten' (Basic Data) screen with fields for Polternummer (2019-2367/003), Baumart (FI), Sorte (LAS), Güte (B/C), Ursprung (Waldbesitzer 2), and Abnehmer. The second screenshot shows 'CUSTOM FIELDS' with Revier/Forstort (5678a3) and Aufarbeitung durch (SAG Sägeklaus), followed by 'Vorderseite' (Front Side) fields for Breite [m] (12.9), Sortenlänge [m] (4), Sektionsbreite [m] (2.0), and Anzahl an Sektionen (6.0). The third screenshot shows 'Rückseite' (Back Side) with a checkbox for 'Rückseite messen' (measure reverse side), 'Unterlagen und Ausschuss' (Documents and Waste) fields for Anzahl Unterlagen (8) and Anzahl Ausschuss (3), and a 'Bildvorschau' (Image Preview) section with a camera icon. Each screen has a 'Weiter' (Next) button at the bottom right and a '1/5' indicator at the bottom left.

- Tap and fill fields one after another; please note that there are required fields, "next" on the keypad switches to the next field. With the orange "Next" on the bottom right to the next photographing step (5 steps)
- With the next data record, the pile number is automatically counted up
- Drop down lists are configured via the web server (see the web server chapter)
- During the next pile photograph, a number of previous entries will be adopted – please always check that this is correct!
- "Custom fields" are additional individual customer fields, which are set up during the initial configuration. In this example, the two fields: "Woodland/forest location" and "Processed by"
- In accordance with official German RVR-rules, the section width is recommended depending on the pile width – however, it can be manually overwritten by tapping the field!
- Select "measure reverse side" as an option (place a check and enter data)
- Lower layers are (using the diameter and sort length defined later) added to the volume and rejected wood is deducted from the volume.
- Required fields must be filled – However, there is no "Next" leading to the next step, photo documentation

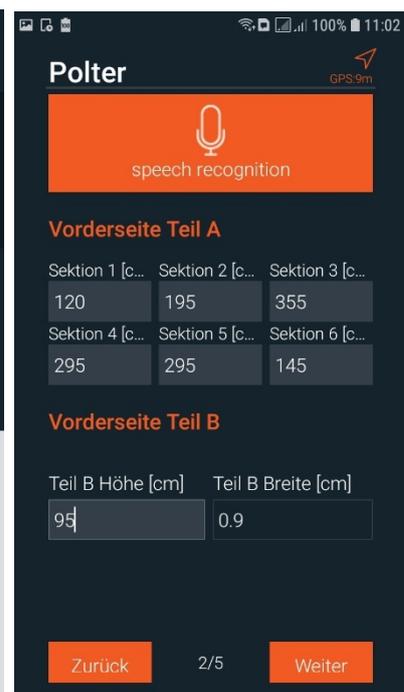
## Photo documentation

- Tap the "Image preview" camera icon
- To document the condition of the pile, a colour photo can be taken and added in different ways:
  - o Using the normal camera function of the Android device
  - o With the panorama picture function. With this function, the front of the pile is recorded by filming it as you walk by and forms a panorama image. For mScale, high-quality pictures serve as the basis for determining the number of log ends in the piles using a photo-optical algorithm.
  - o Pictures can also be taken ahead of time and loaded via the gallery.



## Step 2/5: Recording section heights

- In general, the heights (in cm!) can be entered manually using the keypad (automatically switches to the next field if at least 3 decimal places have been assigned) or input using speech recognition
- The section heights of the front side (part A) are entered consecutively
- The height in the middle of the "remaining section" (part B) is also entered – the width is specified
- If "Measure the back side" has been activated under 1/5, proceed the same way along the front
- Individual input fields can also be tapped – "Next" skips to the respective next field.



## Speech recognition

- mScale can be used to collect the fields of section heights, diameter (sampling for the average diameter or a distribution of diameters) as well as measurement data for individual log (length, diameter) via the speech recognition function.
- For this, activate "speech recognition"
- A ringtone will sound and the number can be entered via voice input. Attention: for voice input, all figures must be in cm. The number is repeated and input skips to the next field.
- Pauses during voice input do not cause any problems. Background noise may be commented on in the "Error" feedback. In this case, the field will not be filled with data. Speech recognition is ready to record again with each additional ringtone (every 5 seconds).
- Speech recognition is deactivated using the "stop" command or tapping the field again – and can be activated again afterwards.
- The following speech commands are possible:
  - o Stop = deactivation of speech recognition
  - o Delete = deletes the figure previously entered (useful if e.g. the value was incorrectly recognised)
  - o Forward = skips to the next field
  - o Go back = skips back one field
  - o Error = informs the user that no entry has been recognised

The screenshot shows the 'Polter' app interface. At the top, there is a 'speech recognition' button with a microphone icon. Below it, the section 'Vorderseite Teil A' is displayed with a grid of input fields for 'Sektion 1' through 'Sektion 6'. The values entered are 195, 355, 295, 295, and 145. Below this is 'Vorderseite Teil B' with fields for 'Teil B Höhe [cm]' (95) and 'Teil B Breite [cm]' (0.9). At the bottom, 'Rückseite Teil A' is visible with 'Zurück' and 'Weiter' buttons.

## Step 3/5: Collection of diameters

- At least one diameter must be assigned as an average diameter for the pile (estimate)
- It is used e.g. to calculate the volume of the lower layers and the rejects
- The average diameter for the pile is updated with a sample of diameter measurements.
- From a sample size of 10 values, a distribution of diameters is calculated on this basis on the web server.
- Manual entry and speech recognition is possible
- The diameters of lower layers and rejects are updated with the average diameter, but can also be overwritten manually (last line)

The screenshot shows the 'Polter' app interface for diameter collection. It features a 'speech recognition' button. Below it, the 'Durchmesser' section has a grid of input fields. The first field contains the value '19'. At the bottom, there are 'Zurück' and 'Weiter' buttons, and a page indicator '3/5'. A numeric keypad is visible at the bottom of the screen.

The screenshot shows the 'Polter' app interface for diameter collection. It features a 'speech recognition' button. Below it, the 'Durchmesser' section has a grid of input fields. The values entered are 19, 22, 25, 19, and 24. Below this is the 'Unterlagen und Ausschuss' section with fields for 'Durchmesser Unterlagen [cm]' and 'Durchmesser' (both containing 21.33). At the bottom, there are 'Zurück' and 'Weiter' buttons, and a page indicator '3/5'.

#### Step 4/5: Calculation of volume and optional counting of units

The image shows three sequential screenshots of the Polter app's 'Volumenberechnungen' (Volume Calculations) screen. The app is running on a mobile device with a dark theme and a status bar at the top showing 100% battery and 11:40. The title bar reads 'Polter' with a 'GPS 9m' indicator.

**Screenshot 1 (Left):** The 'Raumübermaß [%] (RÜM)' field is empty. 'Volumen RM [m³]' is 109.16. 'Dichte [%] RM → FM' is empty. 'Volumen FM [m³]' is 0. 'Stückzahl' is empty. Buttons: 'Zurück' (orange), 'Weiter' (grey).

**Screenshot 2 (Middle):** A numeric keypad is overlaid. 'Raumübermaß [%] (RÜM)' contains '4'. 'Volumen RM [m³]' is 104.79. Buttons: 'Zurück' (orange), 'Weiter' (grey).

**Screenshot 3 (Right):** 'Dichte [%] RM → FM' contains '60'. 'Volumen FM [m³]' is 62.88. Buttons: 'Zurück' (orange), 'Weiter' (orange).

- The volume is displayed in the cord m.R. including the volume of the support logs and less the reject volume as "Volume CM [m³]".
- If a Stack settling factor is assigned in % as a reduction factor, the gross volume CM [m³] is automatically reduced and then corresponds to the net cord.
- The value "Density [%] CM => SCM" is used to define the conversion factor from "VLM CM [m³]" to "Volume SCM [m³]" (required field). Example: 60 corresponds to 0.6.  
Volume solid cubic meter =  $0.6 \cdot \text{net volume CM}$ .

### **Number of pieces and determination of number of units**

The number of units can be entered manually in the number of units field. Please note that this value will be overwritten if the function for photooptically determining the number of units in the photo is activated.

The field "Determine the number of units" is activated; if a photo has been taken in step 1/5, the number of units in the photo will be counted using photooptical means. The accuracy of automatic detection of the number of units depends on the quality of the image taken (was the front of the pile captured? Are there any distorted or blurry areas) and the condition of the log front areas (dimension, fresh, old, dirty).

Depending on the hardware configuration and performance of the Android device, it may take anywhere from a few seconds to a few minutes to analyse a picture!

Photo-optical recognition of the number of units opens with "Determination of the number of units".

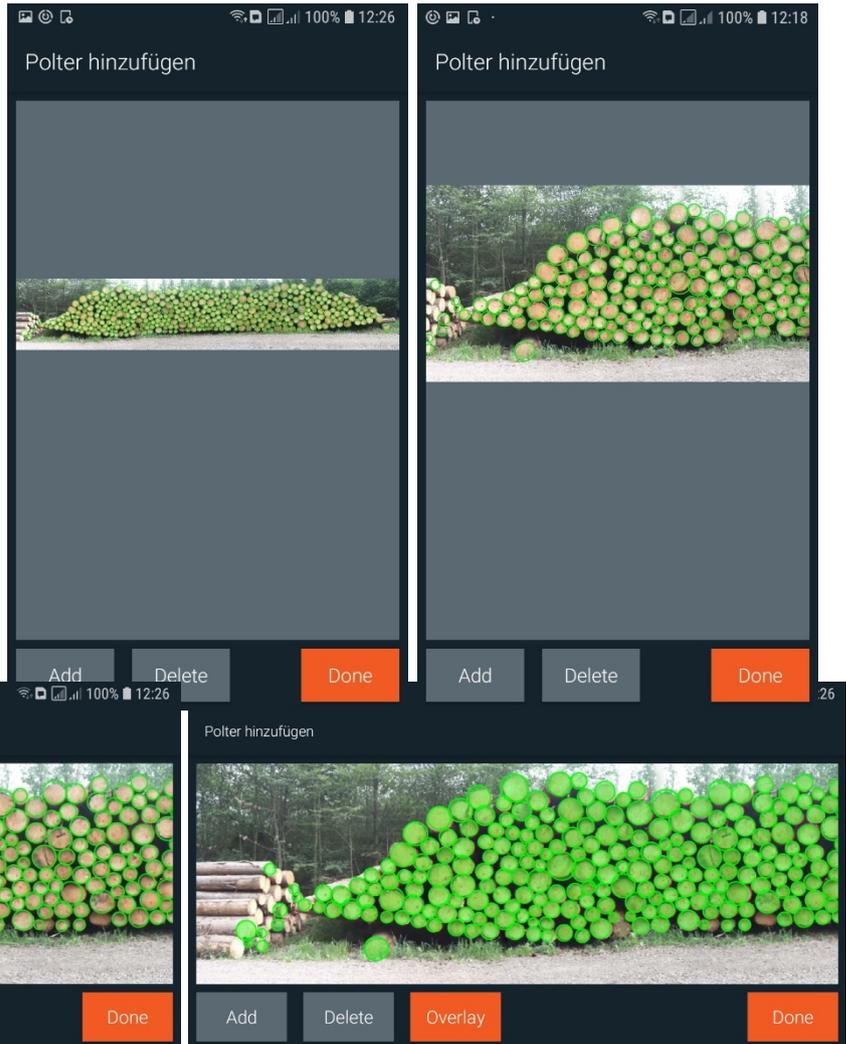
- If the app has not finished analysing the photo, this field cannot be activated
- Depending on the end device, the control panels are shown below
  - o "Add" = add circles in the photo
  - o "Delete" = delete circles in the photo
  - o "Overlay" = Highlight the circular areas
  - o "Done" = Finish

. The number of units can be counted in portrait and landscape view. All buttons should be visible in landscape view.

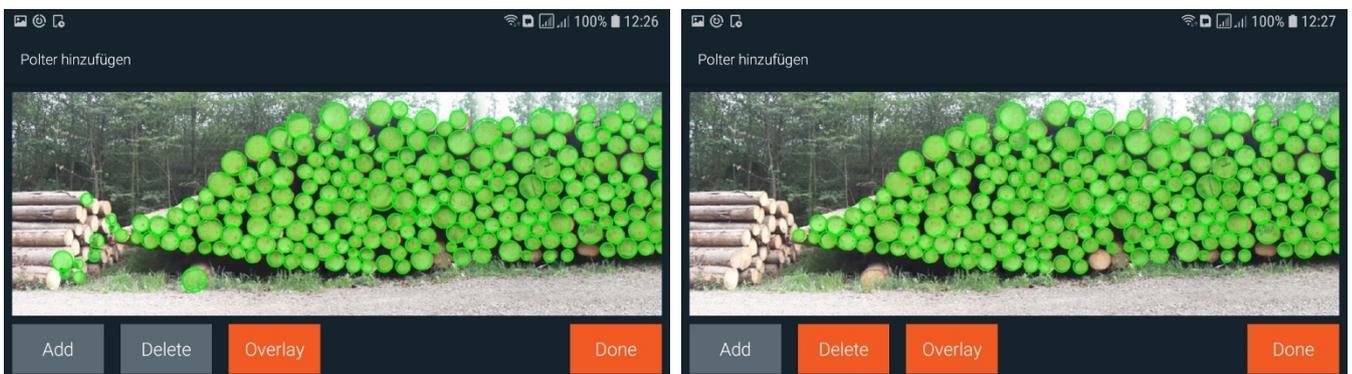
- ATTENTION: the circular areas should facilitate counting and providing an overview; they do not provide any diameter information.



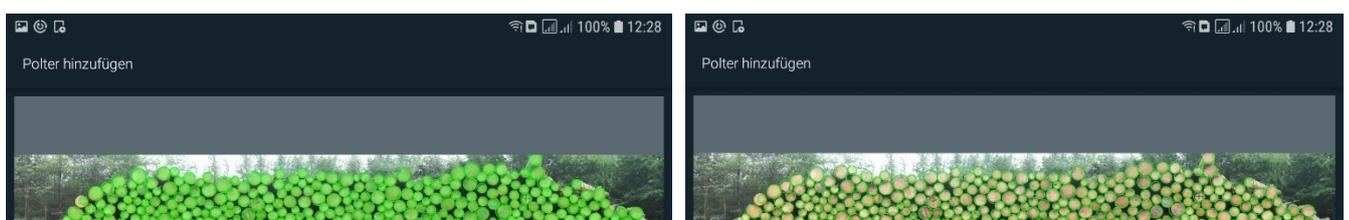
- If "add" and "delete" are deactivated (grey), one can zoom in and out on the picture with two fingers and navigate to the left and right on the picture.
- The functions "add" and "delete" are only possible when the screen view is fixed.
- All structures shown in the picture taken are taken into account in log recognition. In order to avoid also deleting logs that do not belong to the pile, additional objects should be avoided on the photo.



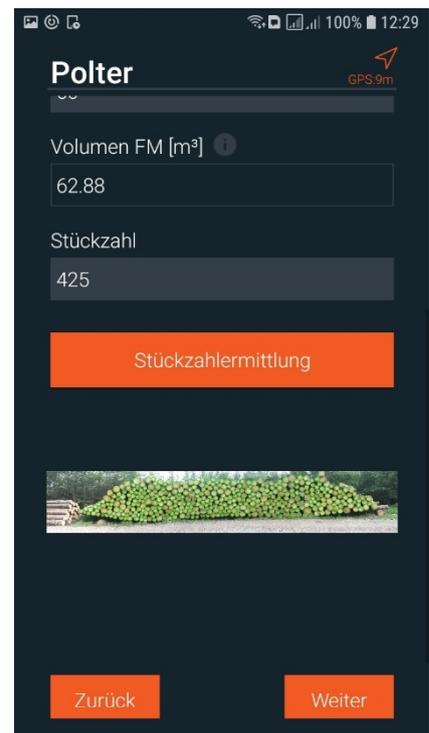
- Display of the function for counting the number of units in landscape view; "overlay" makes it easier to check and correct the automatic counting of the number of units as all circular areas are highlighted.



- To delete incorrectly recognised log ends, activate "Delete" and tap the applicable circles in the picture
- "Add" adds logs that are not recognised by tapping on the log areas. They are marked with circles of the same size.

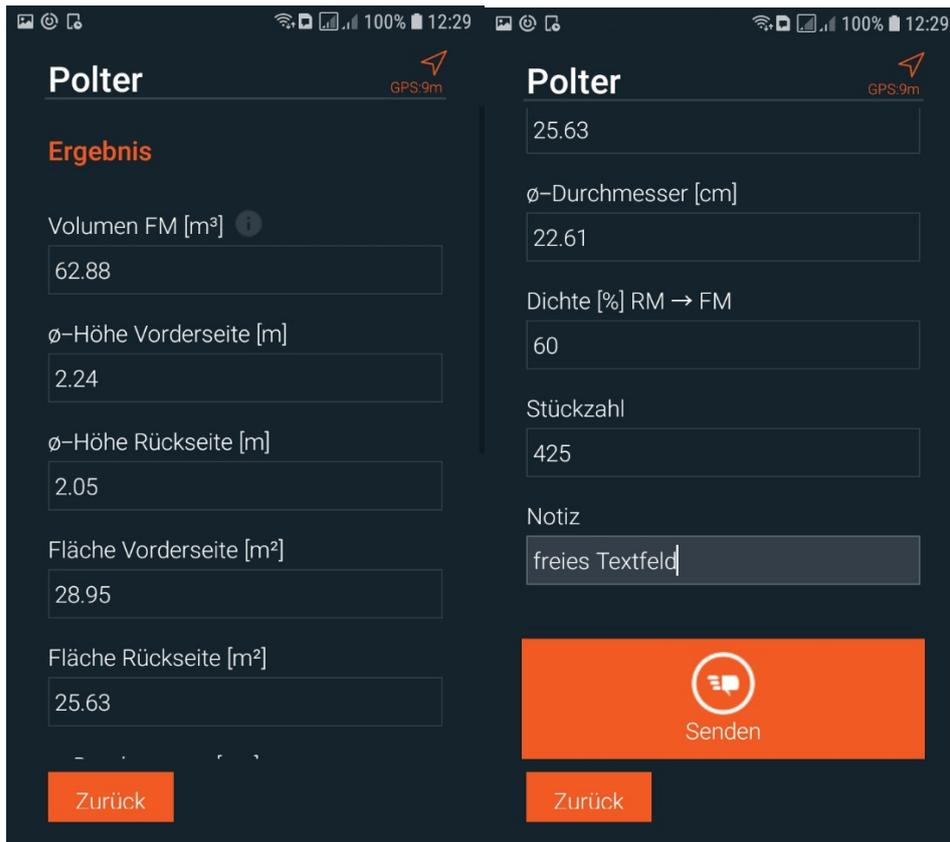


- The count of the number of units finishes with "Done" once this has been checked and corrected. The field "Number of units" is filled accordingly. ATTENTION: Lower layers are counted separately at the same time.
- The rendition of the picture with the circles that are not highlighted is now used to document the pile.

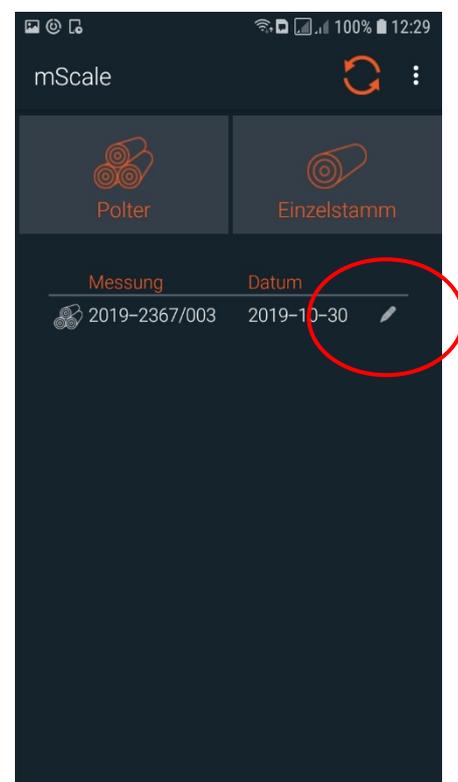


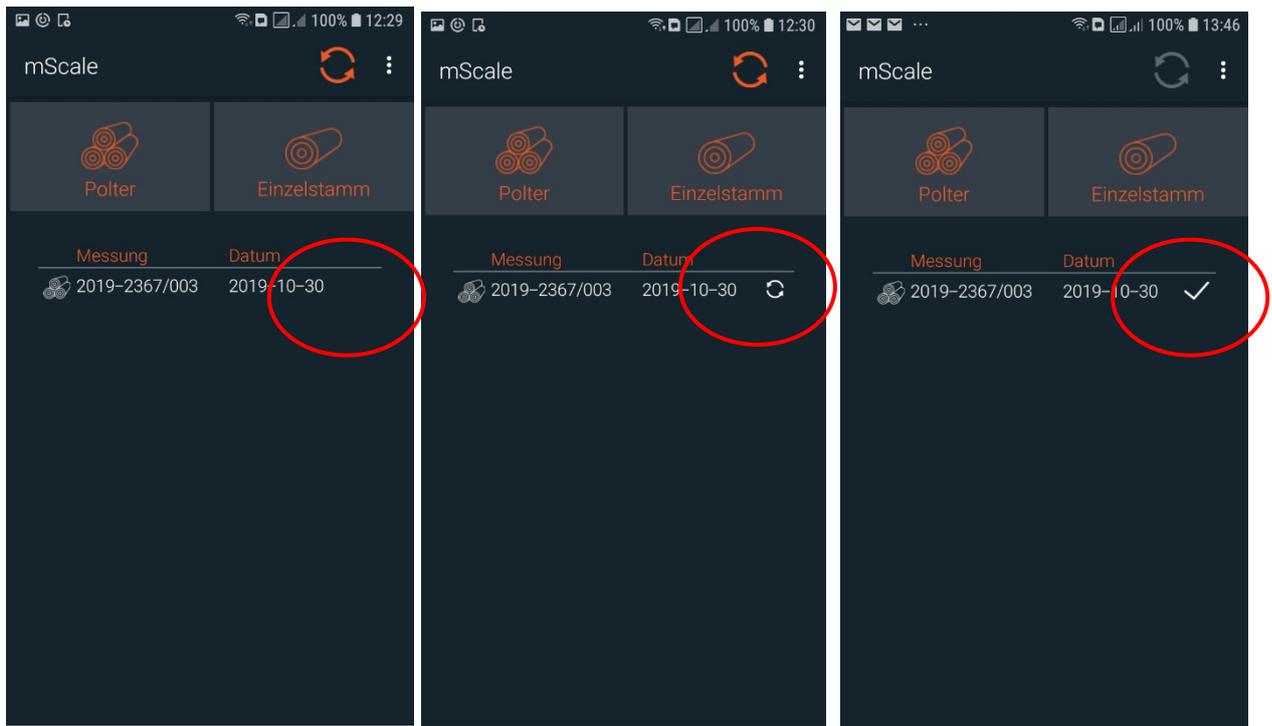
The screenshot shows a mobile application interface with a dark background. At the top, the status bar displays icons for signal, Wi-Fi, battery (100%), and time (12:29). The app title "Polter" is at the top left, and "GPS: 9m" is at the top right. Below the title, there is a dropdown menu. The main form contains two input fields: "Volumen FM [m³]" with the value "62.88" and "Stückzahl" with the value "425". Below these fields is an orange button labeled "Stückzahlermittlung". Underneath the button is a photo of a large pile of logs. At the bottom of the screen, there are two orange buttons: "Zurück" on the left and "Weiter" on the right.

**Step 5/5: Presentation of results – send, synchronise or store locally in an editable form**



- Presentation of:
  - o the volume result (in net SCM including lower layers less the rejected volume)
  - o Intermediate values (mean heights, areas)
  - o Mean diameter
  - o Number of units
  - o Empty note field at the end
- "Send" finalises the data record so that it can no longer be changed! Once an Internet connection is available, the data is synchronised with the server and otherwise kept until the network connection has returned.
- The data record is then available for viewing in the archive. The archive opens by tapping the data record in the list and it can be scrolled down.
- If the creation of the data record is aborted ahead of time (the back button on the bottom right of the tablet or smartphone), the data record can still be edited and is displayed in the list with a small pen icon. Tapping it skips to the last position edited. All values that have already been entered (including the number of units counted) are still present and can be edited.





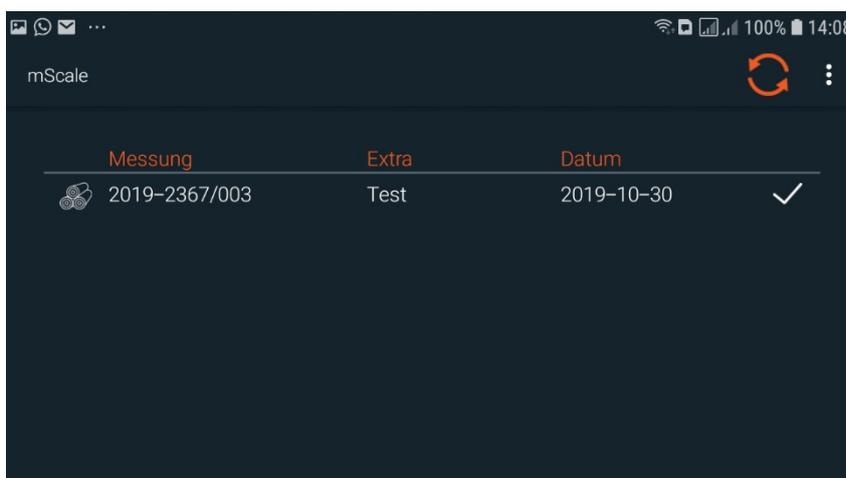
Progress of synchronisation with the web server after "send" or completion of the data set. Synchronisation, which is (not) yet successful, is indicated with a cross.

### Overview list and archive

The pile data record is shown in the chronological history list. The initial icons signal piles or individual master data. The icon at the end signals the synchronisation or editing status.

Tapping it opens the archive entry and all recorded information is shown. Nothing else can be changed here. Species, kind, buyer and seller can only be edited on the web server.

The data record on the top right can also be completely deleted from the Android device – but is still available via the web server after synchronisation.



The list shown contains additional information (Pile/individual log icon, number and date)

mScale

**Grunddaten**

Polternummer  
2019-2367/003

Baumart  
FI

Sorte  
LAS

Güte  
B/C

Ursprung  
Waldbesitzer 2

Abnehmer

**Custom fields**

Revier/Forstort  
5678a3

Aufarbeitung durch  
SAG Sägeklaus

**Vorderseite**

Breite [m]  
12.9

Sortenlänge [m]  
4.0

Sektionsbreite [m]  
2.0

Sektionshöhen [m]

**Rückseite**

Breite [m]  
12.5

Sektionsbreite [m]  
2.0

Sektionshöhen [m]  
1.2 ; 1.95 ; 3.55 ; 2.95 ; 2.95 ; 1.45 ; 0.9

**Unterlagen und Ausschuss**

mScale

**Unterlagen und Ausschuss**

Anzahl Unterlagen  
8

Anzahl Ausschuss  
3

**Durchmesser**

∅-Durchmesser [cm]  
23.0

Durchmesser Unterlagen [cm]  
23.0

Durchmesser Ausschuss [cm]  
23.0

mScale

**Volumen**

Volumen RM [m³] ⓘ  
104.79

Dichte [%] RM → FM  
60

Volumen FM [m³] ⓘ  
62.88

Volumen Unterlagen FM [m³]  
1.28

Volumen Ausschuss FM [m³]  
0.48

**Info**

mScale

**Info**

Datum  
Wed Oct 30 12:29:54 GMT+01:00 2019

Status  
Synced

Fehlermeldung

Stückzahl  
425

GPS: [Lat. Long.]  
52.191385 12.755427

**Bildvorschau**

- Exemplary presentation of all archive information for a pile
- The picture can be enlarged for viewing and moved

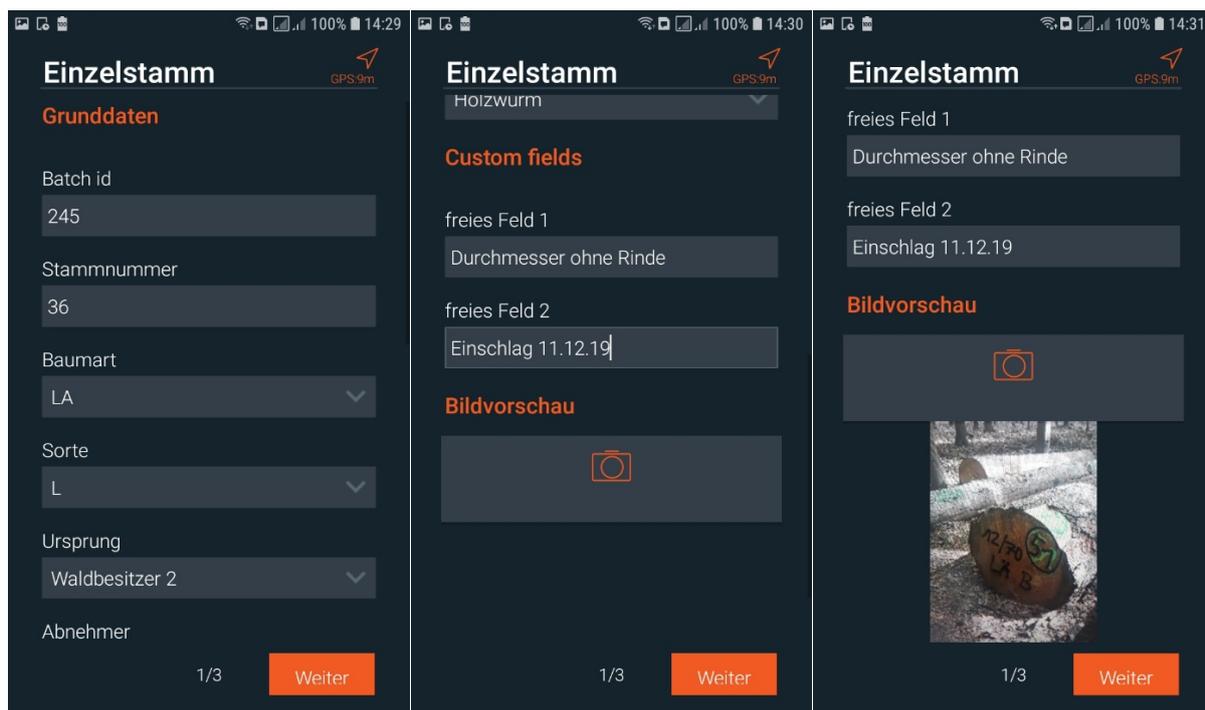


## 1.4 Collection of individual logs – in 3 steps



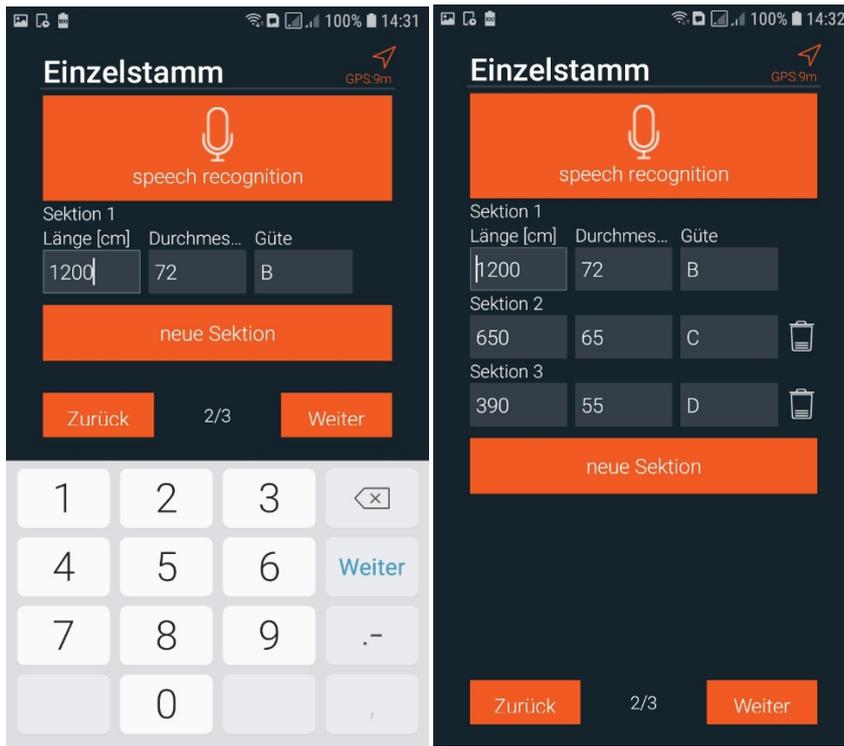
### Step 1/3: Basic data for an individual log

- Assign a "Batch ID" log list number. This will remain in the field for the next individual logs until it is changed manually!
- The log no. automatically counts up with the next data record – but can always be edited freely.
- Dropdown lists (species, kind, origin, buyer) are configured via the web server
- Required fields must be filled out – otherwise, it is not possible to tap "Next" to proceed to the next step
- Each individual log data record can be documented with a photo. All options for taking pictures available on the device are offered, including the gallery function.



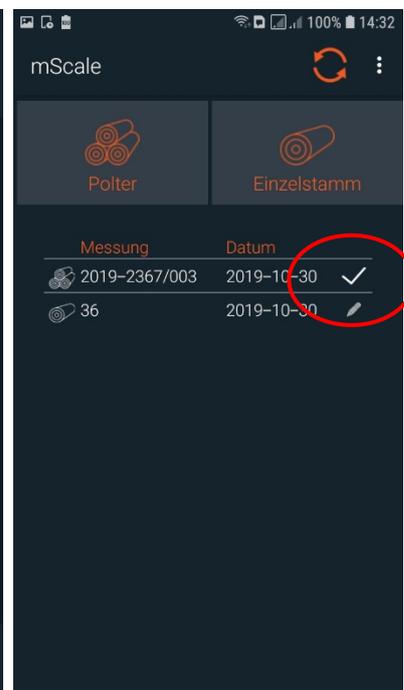
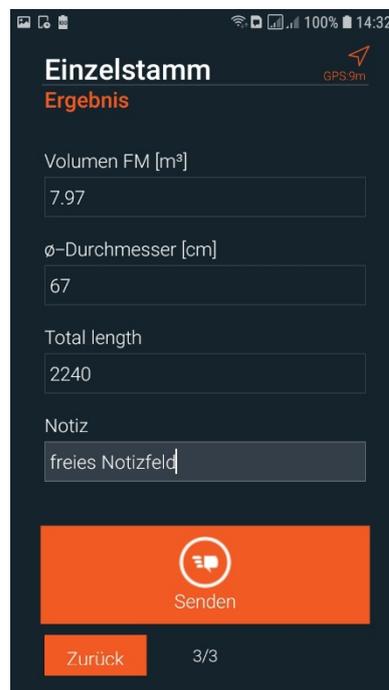
### Step 2/3: Data for the individual log sections

- A length and diameter must be assigned to each log; the grade is optional and is provided as an empty text field.
- Data is entered using the keypad or speech recognition with the functions described above
- With "new section", a log must be divided into different sections; the length, diameter (and grade) must be assigned for each section; no more than three sections will be used

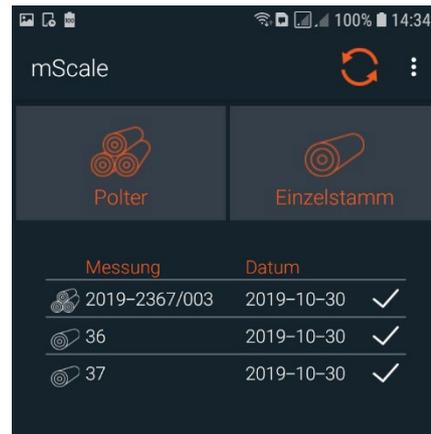


### Step 3/3: Presentation of results – send, synchronise or store locally in an editable form

- Presentation of the sales volume and the mean diameter for the entire log
- Note field for comments
- "Send" finalises the data record and can no longer be changed! Once an Internet connection is available, the data is synchronised with the web server and otherwise kept until the network connection has returned.
- The data record is then available for viewing in the archive. The archive opens by tapping the data record in the list and it can be scrolled down.
- If the creation of the data record is aborted ahead of time (the back button on the bottom right of the tablet or smartphone), the data record can still be edited and is displayed in the list with a small pen icon. Tapping it skips to the last position edited. All values that have already been entered are still present and can be edited.



- If another log is recorded in the same list, select the individual log icon again. Now, the previous log number was increased by one; all fields have been filled out in advance as before. If changes result for the current log, this must occur here. These changes are in turn used for the next log to prefill the fields. Ideally, only the length and diameter must be assigned for the following log and the diameter must be assigned so that a list of logs can be quickly recorded.

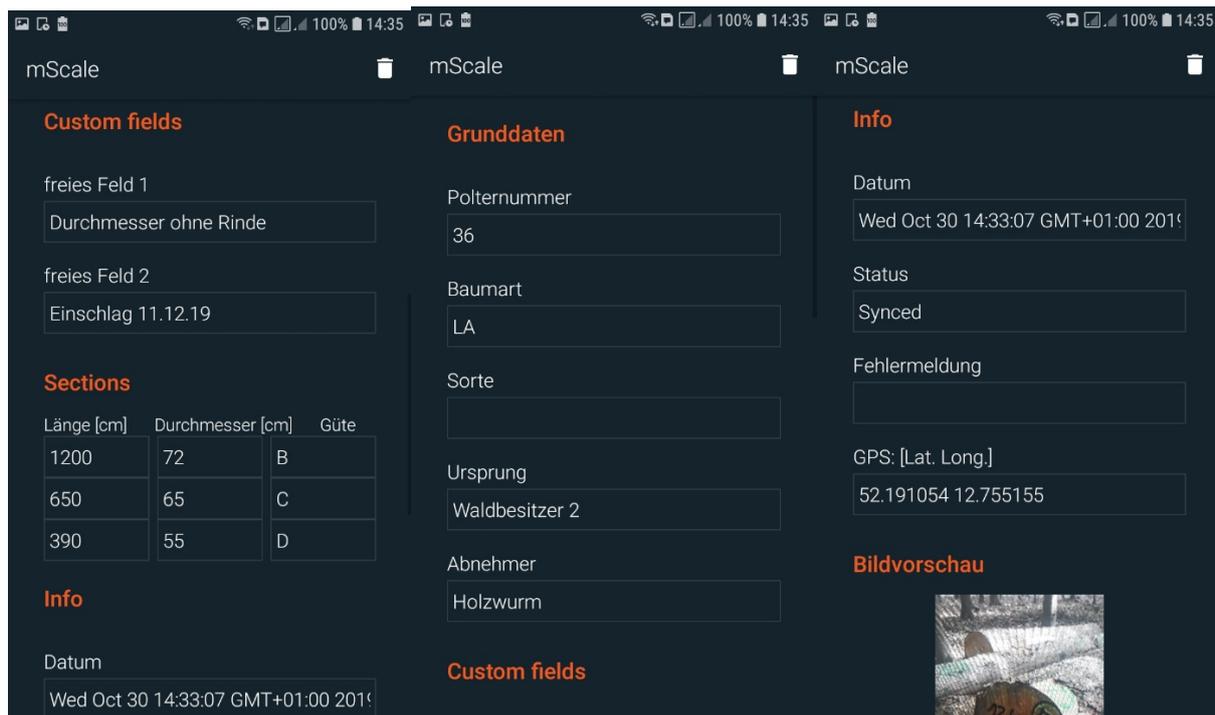


### Overview list and archive

Each individual log data record is shown in the chronological sales list. The initial icons indicates piles or individual log data. The icon at the end indicates synchronisation or editing status.

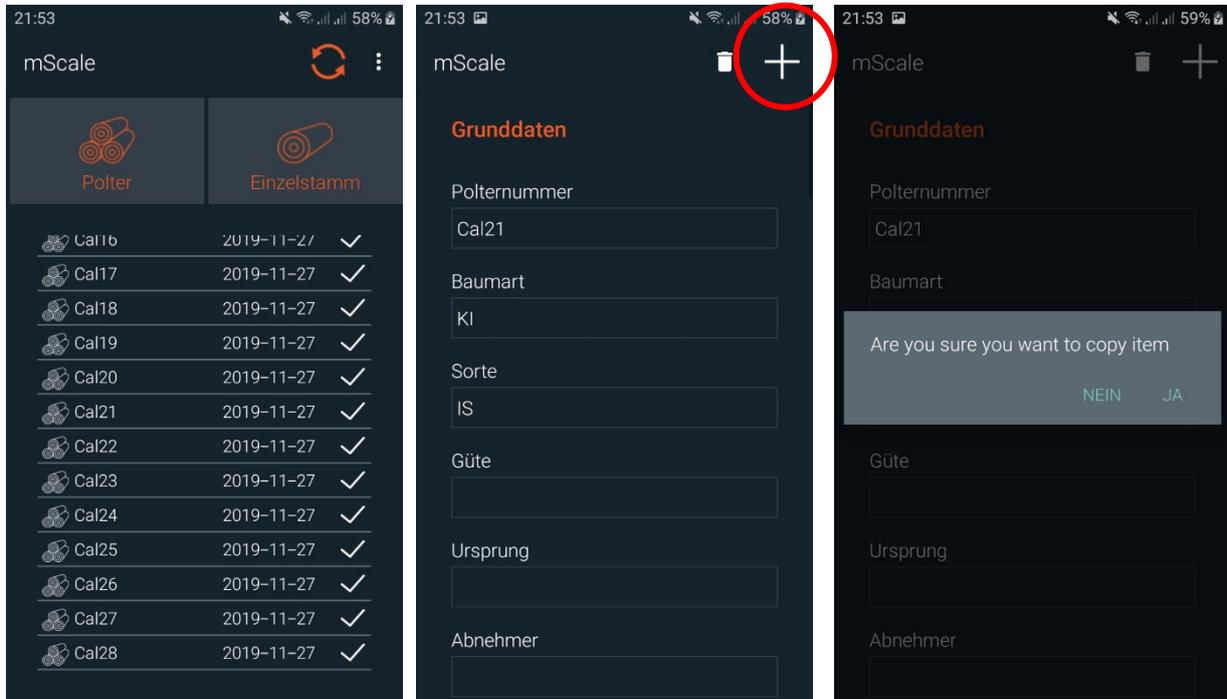
Tapping it opens the archive entry and all recorded information is shown. Nothing else can be changed here. Species, kind, buyer and seller can only be edited on the web server.

The data record on the top right can also be completely deleted from the Android device – but is still available via the web server after synchronisation.



## 1.5 Copy and edit data records from the archive

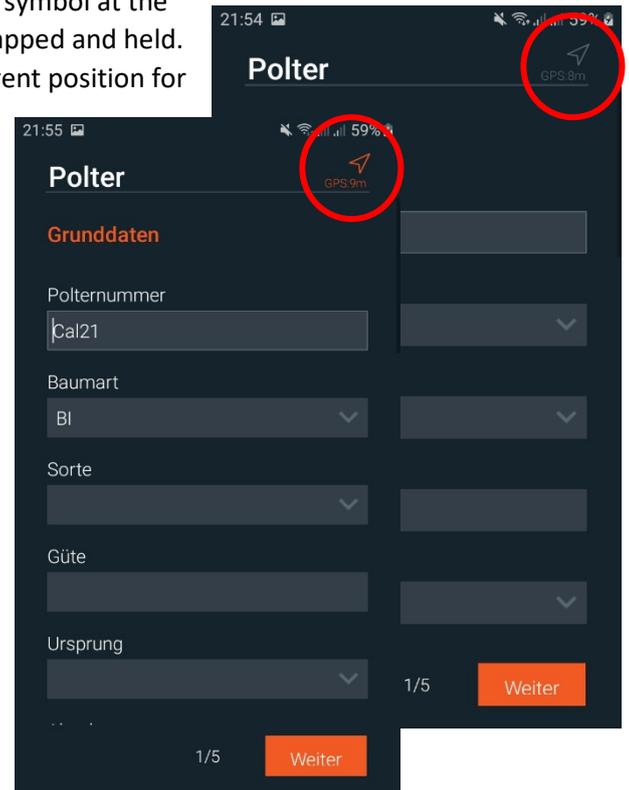
If a data record that was already synchronised with the server is changed again (data changes beyond the attributes tree type, kind, origin and recipients), the data record can be very easily generated via the function “copy data record from archive”. All information is presented here in an identically pre-filled data record and inserted at the bottom of the archive list as a data record in edit mode. The process:



1. Select the data record from the archive list of the Android device by tapping on it (in this case Cal21)
2. Copy the data record with the “+” in the top right corner
3. Confirm selection with “YES”!
4. A data record now appears at the bottom end of the archive list with an identical number in “Edit mode”. Tap and edit.
5. All information is now pre-filled and available, and can be changed as required



6. ATTENTION: the GPS position is NOT updated (GPS symbol at the top right remains grey), unless the GPS symbol is tapped and held. The symbol then turns orange and accepts the current position for the data record.



If the stack number or list and log number remains identical, the most recent data record with the update date will always be superimposed after synchronisation and is available for export functions, etc. The older data records with the same ID can now only be viewed.

28-11-2019
27-11-2019

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Cal21
7,20m<sup>3</sup>
📄

---

Vermessen: 28-11-2019 von Stuhlmann. *am Zaun. weg frei machen*

In Bearbeitung:

Registriert:

Baumart: KI	Vorderseite: 4,00 m <sup>2</sup>	Stückzahl Schätzung: 8
Sorte: IS	Sortimentlänge: 3,00 m	Unterlagen: 0,00 m <sup>3</sup>
Verkäufer:	Höhe: 2,00 m	Ausschuss: 0,00 m <sup>3</sup>
Käufer:	Länge: 2,00 m	Polter Dichte: 60%

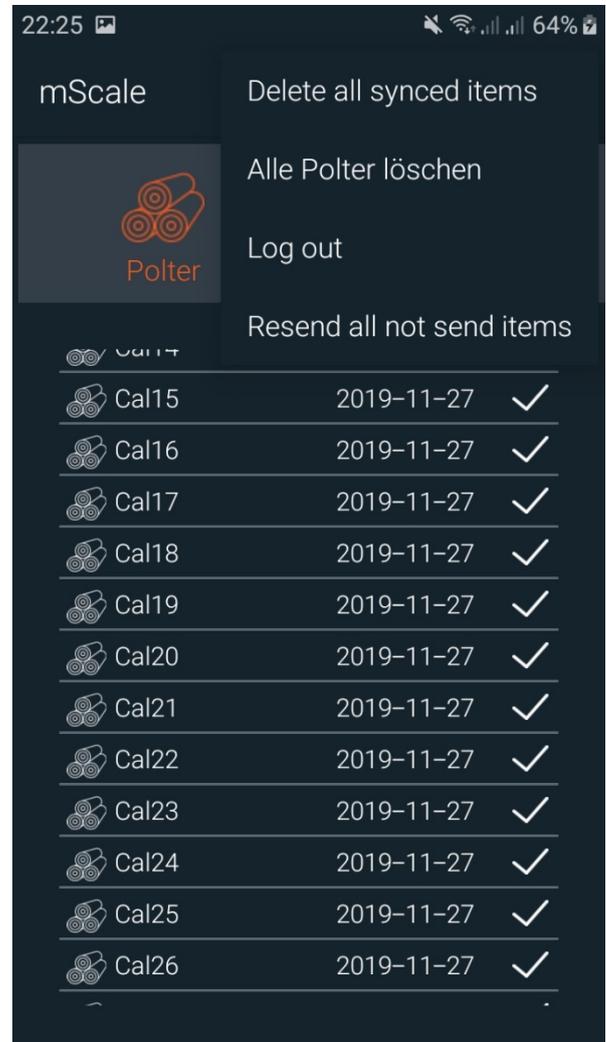
In this way, it is possible to simply newly create stack and individual master data and overwrite erroneous data. However, the update history is always retained on the web server.

## 1.6 Main menu – synchronisation, logout and delete data

The three items listed vertically above each other at the top right open the main menu.

4 functions are offered here:

1. Delete all synced items = deletes all synchronised data records from the list (these are marked with a tick)
2. Delete all stacks => deletes all data from the list, irrespective of the editing or synchronisation status
3. Log out = closes mScale; afterwards the user must log back in with the server name, user name and password – ATTENTION an internet connection is required for this!
4. Resend all not send items = sends all fully edited data records that have not yet been synchronised – if the requisite internet access is available.



## 2. Dralle web server

The Dralle web server is your central point for storing and using data, documentation and managing user rights. The primary functions are described and explained below so that you can comfortably document your wood data and use it in your business processes.



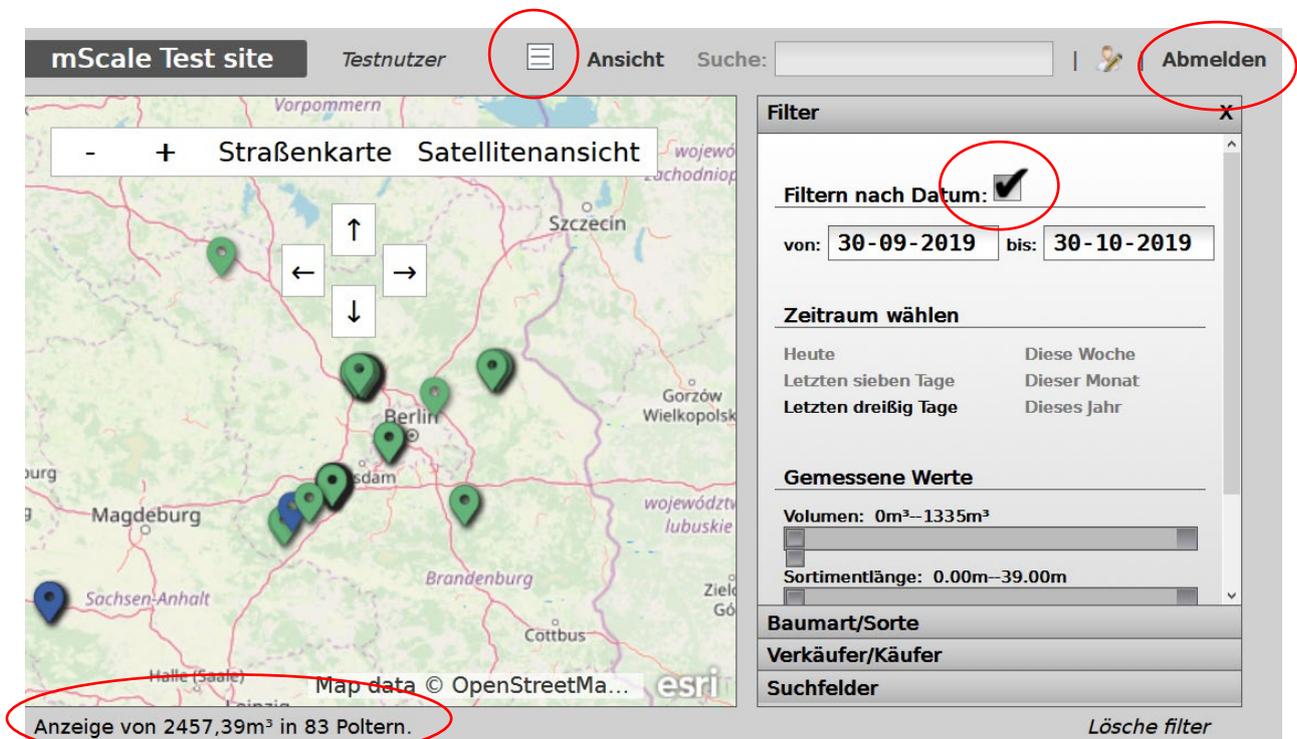
### Logging on to the server

Please use the link [www.sScale.dk/servername](http://www.sScale.dk/servername) in your Internet browser to access the server.

You are advised of the server name (in this case 'test') your user name and your password and click "Log in". I the administrator of the web server or Dralle A/S.



### 2.1 Overview of the server interface



The server interface is divided into a map block containing a table and a filter block on the right. Timber storage positions are shown on the map and the corresponding data in the table. The timber data shown is sorted with the filter (e.g. preset 'Filter by date'). On the top left, you will find the name of your organisation and your user name (in this case "mScale Test site" and "Test user"). The

map view can be switched between the street map or satellite image view. You can change the scale by scrolling with the mouse wheel or clicking on the "+" and "-"; you can also use the arrows to move the map view without the mouse. Holding the left mouse button and moving it will move the map. With the icon on the right next to your user name, you can switch from the map view to the lists/table view. Here, you can find all piles shown in the map view and perform different actions (see below). On the bottom left, you can find an overview of all piles shown in the map or list. The total volume in solid meters and the number of piles is specified. Map view AND filter selection determine the content of the table view. Log in on the top right by clicking on "Log off".

### Top menu bar - view

Next to the icon for switching between the map view and list, the display of data can be set via 'View'. In this way, all data or solely pile data or solely individual log data can be shown. It also shows wood data that is 'in the transport process' (blue) and is reported as 'Shipped' (black). The categories: only measured, registered and reported piles are intended for measurement with sScale. Map views can be saved and selected with a click.

The screenshot shows the 'mScale Test site' interface. At the top, there is a search bar and a user profile icon labeled 'Testnutzer'. A dropdown menu is open, showing options for 'Ansicht' (View) and 'Suche:'. The 'View' menu includes options like 'zeige...', 'nur vermessene Polter', 'nur registrierte Polter', 'nur angemeldete Polter', 'im Transportprozess', 'Abgefahren', 'abgelehnt', and 'Alle'. Below the menu, there are buttons for 'gespeicherte Ansicht - klicken zum laden', 'aktuelle Ansicht speichern', and 'speichern'. The main table displays columns for 'Polter ID', 'Datum', and 'Menge'. The status bar at the bottom indicates 'Anzeige von 2457,39m³ in 83 Poltern.' and 'Lösche filter'.

If one or more data records is selected in the list (on the far left in the check box), the menu list expands with the points 'Export' and 'Transport'. More information further below.

## 2.2 Modify user data and login

As with all online applications, it is recommended for reasons of security that you regularly change the password. To do so, click on the small figure on the top right. A form for changing user data will open. Change the password by entering the new password in the "Password" field and confirm this in the "Password repeat" field. If the passwords differ due to an error in the entry, the two fields will be outlined in red. You can change your real name in the "Full name" field. This name will be

The screenshot shows the user data modification form. At the top, there is a search bar and a user profile icon labeled 'Abmelden'. The form has a 'Filter' section with a 'Filtern nach Datum:' checkbox checked. Below this, there are input fields for 'von: 09-07-2019' and 'bis: 08-08-2019'. A 'Zeitraum wählen' button is also visible.

displayed on the main server page as well as with all actions directly linked to your user account (for example, information as to who created the timber data record). The user name cannot be changed. You can store your e-mail address and phone number in the "Email" and "Phone" field. Click "Save" to save your changes. Your changes will be discarded by clicking "Cancel". You will see the user rights assigned to you in the bottom part of the form. If you would like to have additional user rights, please contact your administrator. If you do not know who is responsible in this regard, you can inquire about their name with Dralle A/S.

## 2.3 Filter

The map view is the first filter function. Only positions shown on the map section are adopted in the data list. With 'Search', you can find specific data records by entering the pile or log number.

The filter block is provided on the right side to filter according to defined search criteria. You can find the other main blocks here: Species/kind/grade, seller/buyer and search fields. The filter searches can be freely combined. The filter setting can be deleted again on the bottom right. The filter settings take effect regardless whether map view or table view is activated.

The screenshot shows the mScale Test site interface. At the top, there is a navigation bar with the site name, user name 'Testnutzer', a menu icon, 'Ansicht', a search field labeled 'Suche:' (circled in red), and an 'Abmelden' button. Below the navigation bar is a map view showing a geographical area with several location markers. The map has zoom controls and view toggles for 'Straßenkarte' and 'Satellitenansicht'. To the right of the map is a 'Filter' panel (circled in red) with the following sections:
 

- Filterm nach Datum:** A checked checkbox and a date range from '30-09-2019' to '30-10-2019'.
- Zeitraum wählen:** A dropdown menu with options: 'Heute', 'Letzten sieben Tage', 'Letzten dreißig Tage', 'Diese Woche', 'Dieser Monat', and 'Dieses Jahr'.
- Baumart/Sorte:** A dropdown menu.
- Verkäufer/Käufer:** A dropdown menu.
- Suchfelder:** A section for additional search criteria.

 At the bottom of the filter panel, there is a 'Löschen filter' button (circled in red). Below the map, there is a summary line: 'Anzeige von 1269,52m³ in 37 Poltern.' Below this are two data tables. The first table shows 'Durchmesser: 10cm-90cm' with a slider. The second table shows 'mScale System:' with a dropdown. The third table shows 'Verkäufer/Käufer' with a dropdown. The fourth table shows a list of timber types: 'Keine', 'Sägeholz', 'Teilurnier', 'Palette', 'Schälholz', and 'Wertholz'. At the bottom of the page, there is another 'Löschen filter' button (circled in red).

The selection criteria shown under 'Tree species/type' and 'Seller/buyer' are defined by the administrator via the list configuration.

Only these selection lists are also available with the mScale app when collecting timber data in the forest.

The 'Search fields' filter block is defined in the first configuration of the web server.

The additional customer fields are also shown here so it is possible to filter according to entries. E.g.: 'Processing company' or 'Forest location'.

The filter functions can be used to specifically combine data packets, which are intended for data export or other applications.

## 2.4 Data export

After the data list has been compiled using various filter functions, the data can be exported.

The entire list can be selected with the checkbox on the far left or just individual data records. The menu bar at the top will be expanded with the 'Export' and 'Transport' function. Various lists are available in the 'Export' menu as 'templates', which generate the defined csv files, which can be edited e.g. Excel. Export as 'PDF' generates detailed documentation of the individual timber data record including a map, photos etc. or a compilation of lists.

The image displays two screenshots of a software interface, likely for timber data management. Both screenshots show a 'Filter' dialog box with a close button (X) in the top right corner.

The top screenshot shows the following sections:

- Baumart/Sorte**: (Section header)
- Verkäufer/Käufer**: (Section header)
- A list of names in two columns:
 

BFS	Bima
FBG Ostharz	FSH
Hatzfeld Massow	PP
ThüringenForst	WB1
WB2	WBV Hohe Fichte
WertWald	
- Wähle Käufer**: (Section header)
- A list of names in two columns:
 

Fiberboard	FSH
HIT	Holzhans
Holzhuber	Holzwurm
MERCEP	Pfeiderer Baunth
- Suchfelder**: (Section header)

The bottom screenshot shows the following sections:

- Baumart/Sorte**: (Section header)
- Verkäufer/Käufer**: (Section header)
- Suchfelder**: (Section header)
- Batch ID:** (Label) followed by an empty input field.
- Güte:** (Label) followed by an empty input field.

The screenshot shows the 'mScale Test site' interface. At the top, there are navigation tabs: 'Testnutzer', 'Ansicht', and 'Export'. A search bar is visible on the right. The main content area displays a list of items with checkboxes and icons. An 'Export' dialog box is open, showing options for exporting the selected items as a template or PDF. The 'Export' button is highlighted. On the right, a 'Filter' sidebar is visible, showing filters for 'Baumart/Sorte' and 'Verkäufer/Käufer'. The 'Verkäufer/Käufer' section is expanded, showing a list of vendors and buyers.

The csv pile list and the PDF documentation of an individual pile is shown below as an example.

Polter-ID	GPS La	GPS Lo	Holzart	Sorte	Guete	Laenge	Stueckzahl	Rm netto	Fm netto
2019-2367/003	52,19139	12,75543	FI	LAS	B/C	4	430	106,07	63,64
2019-2367/003	52,19139	12,75543	FI	LAS	B/C	4	430	106,07	63,64
2019-2347/006	52,36207	13,13463	LA	IS OSB	FK	3	4	84,51	50,71
2019-2347/006	52,36207	13,13463	LA	IS OSB	FK	3	4	84,51	50,71
2019-2347/005	52,36217	13,13481	SNB	LAS	B	4	94	43,79	26,27

**Polter-ID: 2019-2367/003**

52° 11' 29" N, 12° 45' 20" O | 52,19139; 12,75543



**mScale™**  
Measure, track and trade



Verkäufer: WB2  
Käufer:  
Holzart: FI  
Sorte: LAS  
Güte: B/C  
Sortenlänge: 4,00 m  
Holzaufnahme am: 30-10-2019  
Holzaufnahme von: Stuhlmann  
Notiz Vermesser: freies Textfeld

Kundenfeld 1: 5678a3  
Kundenfeld 2: SAG Sägeklaus  
Polterbreite: 12,70m  
Mittl. Höhe vorne/hinten: 2,15m/2,15m  
Resultierende Fläche: 27,29m<sup>2</sup>  
Stückzahl Polter: 425  
Unterlagen (Stück): 1,28Fm (8)  
Ausschuss (Stück): 0,48Fm (3)

Gebindevolumen [Rm m.R.]: 109,16m<sup>3</sup> (resultierende Fläche \* Sortimentslänge)

Rm m.R. (brutto): 110,50m<sup>3</sup> (inkl. Unterlagen, abzgl. Ausschuss)

Raumübermaß: 4%/4,42m<sup>3</sup> Rm m.R.

**Rm m.R. (netto): 106,08m<sup>3</sup>**

Dichte [%] Rm => Fm: 60%

Fm o.R. (brutto): 66,30m<sup>3</sup>

**Fm o.R. (netto): 63,65m<sup>3</sup>**

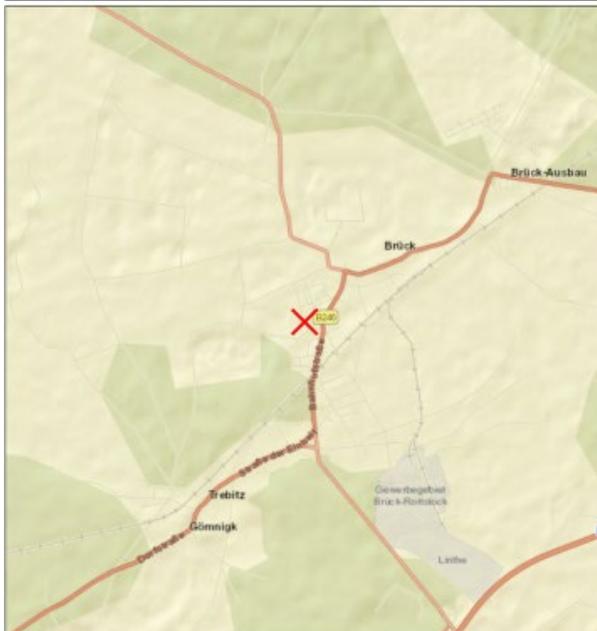
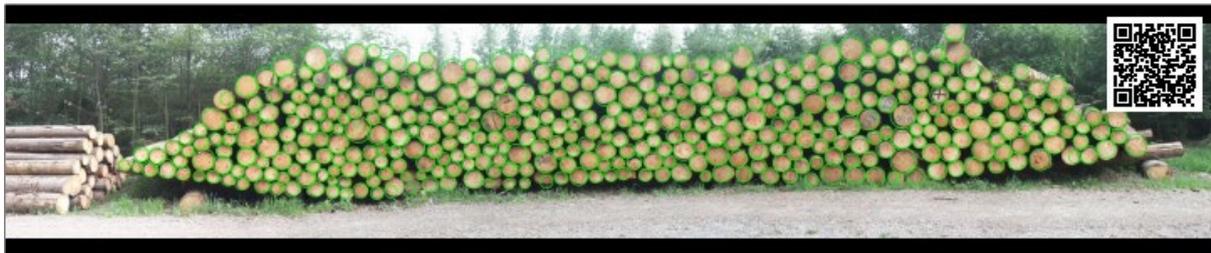
Sektionshöhen vorne Teil A (in cm): 120;195;355;295;295;145;95

Teil B vorne Höhe/Breite (in cm): 95/90

Sektionshöhen hinten Teil A (in cm): 120;135;145;255;345;255;105

Teil B hinten Höhe/Breite (in cm): 105/50

Stichprobe Stärkeklassenverteilung			
Mitteldurchmesser o.R.: 0,23m			
StKI	Fm o.R.	% von Fm	Stück
1a	0,00	0%	0
1b	0,20	26%	8
2a	0,15	20%	4
2b	0,17	23%	3
3a	0,24	31%	3
3b	0,00	0%	0
4	0,00	0%	0
5	0,00	0%	0



The QR code shown on the map is linked to Google Maps; the QR code in the image is linked to the digital colour photo on the web server.

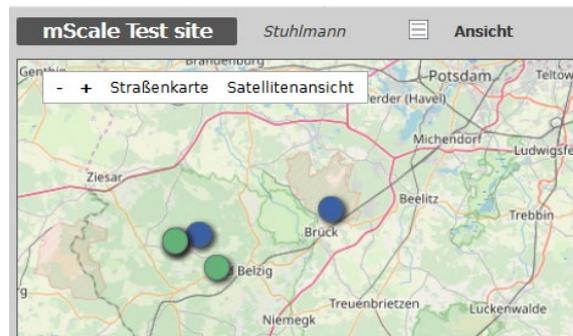
## 2.5 Transport orders

Via the 'Transport' menu item, select data records can be assigned to transport companies for pickup. Afterwards, the colour of the data record icon changes from green to blue. The administrator documents the transport companies as "Organisations"; they are available in a list for selection. With corresponding login data (user name, password), the hauliers can now log onto a web server with only basic functionality and use the timber information.

The screenshot shows the 'mScale Test site' interface. A table lists timber records with columns for 'Polter ID', 'Datum', and 'Volumen'. A 'Transport' modal window is open, displaying a message '4 vermessende Polter ausgeählt!' and a dropdown menu for 'Auswahl zum Transport durch:' with options: 'Claus Lundgaard Transport', 'Claus Lundgaard Transport', 'Holzhuber GmbH', 'Holzmichel GmbH', and 'Holzschmidt'. Below the dropdown, there are sections for 'Zeitraum wählen' (Today, Last seven days, Last thirty days, This week, This month, This year), 'Gemessene Werte' (Volumen: 0m³-1335m³, Sortimentlänge: 1.00m-25.00m, Durchmesser: 10cm-90cm), and 'sScale System:'.

The screenshot shows the 'mScale Test site' interface with a table of timber records. The table has columns for 'Polter ID', 'Datum', and 'Volumen'. Some records have blue icons, indicating they are assigned to transport companies.

Polter ID	Datum	Volumen
2019-1234-014	07-08-2019	5,59 m³
805-7-8-01	05-08-2019	71,82 m³
2019-1234/013	05-08-2019	59,72 m³
Test BLF 2	31-07-2019	134,60 m³
Test BLF	31-07-2019	130,82 m³
330/0/17/45/5/4	29-07-2019	84,74 m³
330/0/17/45/5/3	29-07-2019	72,65 m³
1234/34	25-07-2019	41,37 m³
1234/34	25-07-2019	41,37 m³
76/4	25-07-2019	1,64 m³
76/3	25-07-2019	3,14 m³
76/2	25-07-2019	233,91 m³
P003	25-07-2019	1,19 m³
P002	25-07-2019	1,86 m³
TEST TEUFELSFEN	25-07-2019	84,21 m³
132/3/45/45/45/45/45	25-07-2019	1334,50 m³
132/3/45/45/45/45/45	25-07-2019	942,33 m³
132/3/45/45/45/45/45	25-07-2019	438,86 m³



With corresponding login data (user name, password), which was generated by the administrator of the web server, the hauliers can now log onto the server with basic functionality and use the timber information for handling the transport. The position and description of the timber data is available to hauliers. Furthermore, the applicable timber data record can be selected and the loaded quantity for pickup or the completion of the pickup can be sent by the haulier. The pickup status can be synchronised and updated on your web server.



The screenshot shows the 'mScale Test site' login form. It includes fields for 'Benutzername:' (username) and 'Passwort:' (password), both with input boxes. The username field contains 'Holzhuber'. Below the fields is an 'Anmeldung' (login) button.

Holzhuber GmbH : Holzhuber Transport GmbH KML Abmelden

- 805-7-8-01
- 2019-1234/013
- Test BLF 2
- Test BLF
- 2019-4711/14
- 2019-4711/13
- 2019-4711/11
- 2019-4711/10
- 2019-tabS3/04
- 2019-4711/09

Map data © OpenStreetMap contributors, CC-BY-SA

Holzhuber GmbH : Holzhuber Transport GmbH KML Abmelden

07-08-2019: In Bearbeitung von Stuhlmann  
59.72m³ verbleibend

geladen  m³

abschließen

- 805-7-8-01
- 2019-1234/013  
52.1909834677354,12.755124  
59.72m³/59.72m³  
Depth: 4.00m  
Species: Kiefer  
Kind: Sägeholz  
Source: PP  
Destination:
- Test BLF 2
- Test BLF

Map data © OpenStreetMap contributors, CC-BY-SA

The server view for a transport company with the assigned timber data and the dialogue regarding the documentation of the loading activity (including the time and date) or the final message are at the top.

The haulier can also download the individual PDF document for each data record. A file can be created with the 'KML' field, which can be regularly processed on numerous navigation systems.

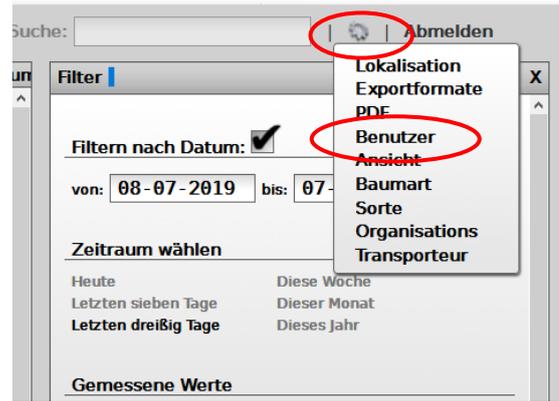
## 2.6 Administrator rights

### 2.6.1 User management and licensing

The administrators can configure the web server by clicking on the 'Settings' icon at the top right next to 'Log off'.

Selecting 'Users' opens the overview of the server users that have been created.

They can be deleted or edited with the icons in front.



Edit: Site Templates **Users** Organisations Hauliers Views Species Kind

User accounts							
	Full name	Username	Administrator	Registration	Assignment	Operator	API Access
 	Administrator	admin	✓	✓	✓	-	-
 	Ulrich Heindl	ULH	✓	✓	✓	-	-
 	Stuhlmann	CST	✓	✓	✓	✓	✓
 	FBG Ostharz	fbgostharz	-	✓	✓	-	-
 	WertWald	wertwald	-	✓	✓	-	-
 	Bundesforst	Bundesforst	-	-	-	-	-
 	ThüringenForst	tmlfun	-	-	-	-	-
 	Naturstyrelsen	NST	-	✓	✓	-	-
 	Forst- & Bildungsservice Schiffner	Schiffner	-	-	-	-	-
 	Baum Landschaft Forst	BLF	-	✓	-	-	-
 	Brandenburgische Forstservice GmbH	BFS	-	✓	-	-	-
 	Hatzfeld-Wildenburgische	Massow	-	✓	-	-	-
 	kein Administrator	kein Administrator	-	✓	-	-	-



Users are added with 'Add new user'.

The new user can access both the web server and link the mobile mScale App to the server with the assigned user name and password. As a result, a mScale license is activated for the user on their server.

At least 'Registration' should be assigned as a user right.

Assign a unique user name in the "User name" field. It can be changed

later and may not be assigned yet. Enter the real name of the user in the "Full name" field. It can be changed later by the user. The real name is shown for all actions associated with the user on the server (for example, in the measurement history for a pile or on the PDF documents). The fields "Password" and "Password repeat" serve to create the initial password and must contain the same

New user

Username:

Full name:

Password:

Password repeat:

---

Email:

Phone:

---

Administrator:   
Administrators can edit export and pdf templates, create and edit users, delete measurements and more.

Registration:   
Check this if this user is allowed to register stacks.

Assignment:   
Check this if this user is allowed to assign measurement orders to the scaling vehicles.

Operator:   
Check this if this user is going to be operating the scaling vehicle. Only users with the operator role will appear in the operator selection list in the vehicle.

API Access:   
Check this if this user is allowed to access the system using the API's. If you do not understand what this means, then it should probably be left unchecked.

character string. There are no restrictions with respect to the characters that can be used and also no minimum requirements in terms of password security. The password can be changed later by the user. The e-mail address and phone number of the user is entered in the fields "Email" and "Phone". Both fields are optional and can be changed later by the user. The user rights are assigned in the bottom part of the form. The following rights are available in this respect:

- Administrator rights:
  - o Create, edit and delete users and licences
  - o Create and edit export file templates and PDF templates
  - o Edit and delete data records
  - o Create and edit lists for species, kinds and organisations
  - o Edit and delete of map views
- Registration: The user can generate data records
- Assignment: The user can approve data records (e.g. for transport)
- Operator: only necessary when using sScale -
- API Access: The user gains access to the central database on the basis of external software solutions. This right is only assigned following coordination with Dralle A/S.

The "Administrator" right does not include the other rights. If no rights whatsoever are assigned, the user can use all filter options and generate PDFs or export files - meaning the user has only read rights. Save the new user by clicking "Save". Clicking "cancel" discards your entries and you return to the user list.

### **2.6.2 Organisations and server access rights for external users**

We stay in the settings menu.

By selecting 'Organisations', the lists of the sellers/forest owners ('Source' = origin) and buyers ('Destination' = where the timber goes) are filled out and maintained. User logins to the web server (with user name and password) can be created within an organisation. These (external) users work with the same interface of their web server – however, they only see the data intended for them.

In the list, they see the organisations already created with their "Role" (source or destination). List entries can be edited with the icons in front or also deleted again.

'Add new organisation' opens the dialogue to create a new organisation. In this case, the real name and code (display in the lists on the web server or with mScale) and at least the "role" are to be assigned.

The list updates accordingly when saved (at the bottom right).

Organisation		
		Brandenburgische Forstservice source
		Bundesforst source
		FBG Ostharz source
		Forstservice Havelland GmbH source
		Hatzfeld Massow source
		Polterprofil source
		ThüringenForst AöR source
		WBV Hohe Fichte source
		WertWald source
		Fiberboard destination
		Forstservice Havelland GmbH destination
		HIT destination
		Holzhuber destination
		Holzworm destination
		MERCER destination

**Add new organisation**

**New organisation**

Name:

Code:

The "code" is the value that will show up in the scaling vehicle and in selection lists on the server. It should preferably be an abbreviation or a short name.

Address 1:

Address 2:

City:

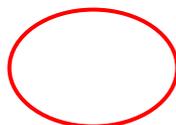
Zip code:

Country:

Phone:

Role:  ▼

Source  
Destination



### 2.6.3 Assignment of external web server logins for individual organisations

Server login rights can be assigned to each individual organisation – regardless whether 'Source' or 'Destination'. This login only provides the user with the view, filter and export function for the data records intended for them on their web server. If a timber data record is assigned e.g. to a certain owner with mScale in the forest, this party can view the data on the web server with its login. If the buyer is defined, said party can view the corresponding data with a login as soon as there is synchronisation between mScale and the web server. The issue of the login for 'Forest owner 1' is shown below as an example

Edit the list entry 'Forest owner 1'.

In organisation information, click 'add login account' at the very bottom. Assign a user name and password and save. If the user is also able to assign data, also click "Registration" at the very bottom.

Organisation		
		Brandenburgische Forstservice source
		Bundesforst source
		FBG Ostharz source
		Forstservice Havelland GmbH source
		Hatzfeld Massow source
		Polterprofil source
		ThüringenForst AöR source
		Waldbesitzer 1 source
		WBV Hohe Fichte source
		WertWald source
		Fiberboard destination
		Forstservice Havelland GmbH destination
		HIT destination
		Holzhuber destination
		Holzurm destination
		MERCER destination

Edit organisation

Name

Code   
The "code" is the value that will show up in the scaling vehicle and in selection lists on the server. It should preferably be an abbreviation or a short name.

Address 1

Address 2

City

Zip code

Country

Phone

Role:

Not defined!

New account for Waldbesitzer 1

Username

Full name

Password

Password repeat

Email

Phone

Registration:   
Check this if this user is allowed to register stacks.

Edit organisation

Name

Code

The "code" is the value that will show up in the scaling vehicle and in selection lists on the server. It should preferably be an abbreviation or a short name.

Address 1

Address 2

City

Zip code

Country

Phone

Role:

---

**Define geographic position** Not defined!

---

**Add login account**

Existing accounts:

[WB1](#)

Finally, the user login 'WB1' will be shown for the organisation. Save again (bottom right) and the login is now available. Now you have to inform the user of their server login ([www.sscale.dk/name](http://www.sscale.dk/name)), their user name and password.

## 2.6.4 Hauliers as an organisation

Just like 'Organisations', hauliers can also be created as special organisations on their web server and the list can be maintained. Just like with 'Organisations', external user logins can also be generated for hauliers so that the haulier is able to access a very reduced view of its web server. This covers the positions of the piles to be transported on a map and possibilities for documenting the progress of their removal.

**Edit:**

---

**Edit organisation**

Name

Code

The "code" is the value that will show up in the scaling vehicle and in selection lists on the server. It should preferably be an abbreviation or a short name.

Address 1

Address 2

City

Zip code

Country

Phone

**Define geographic position** Not defined!

**Add login account**

**Haulier**

- Claus Lundgaard Transport**
- Holzhuber GmbH**
- Holzmiichel GmbH**
- Holzschmidt**

## 2.6.5 Configuration of further lists

Under settings, you can freely configure the following lists on your web server.



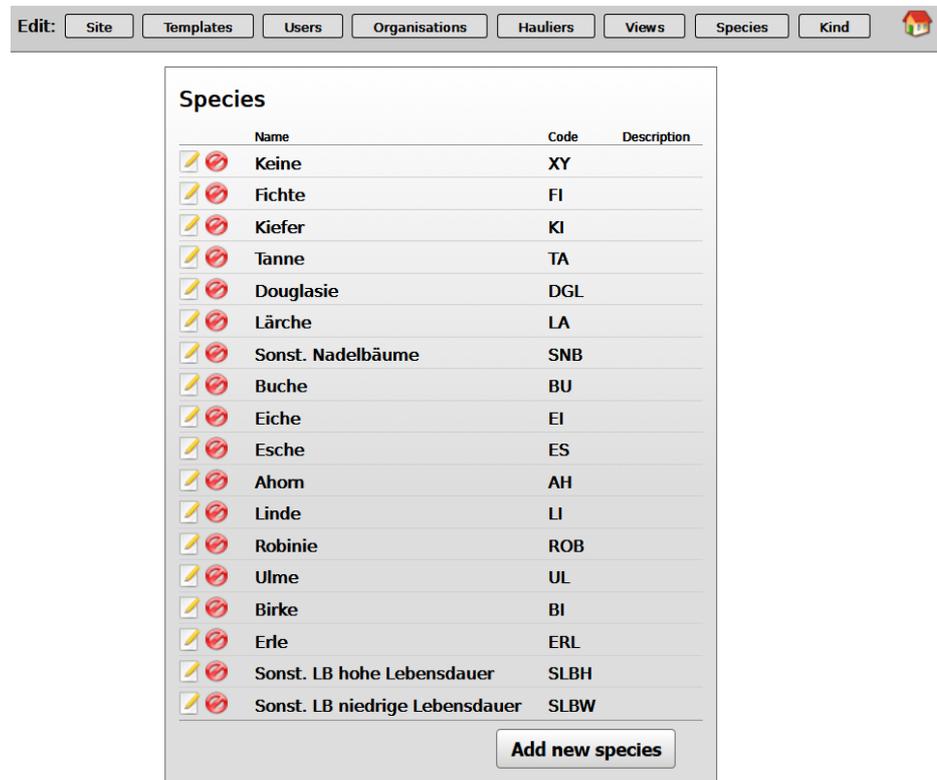
'Species'; 'Kind'

With mScale, the list entries you generate are available as a "dropdown selection" in connection with the collection of timber data with mScale.

You define how you name species and kinds and shorten them.

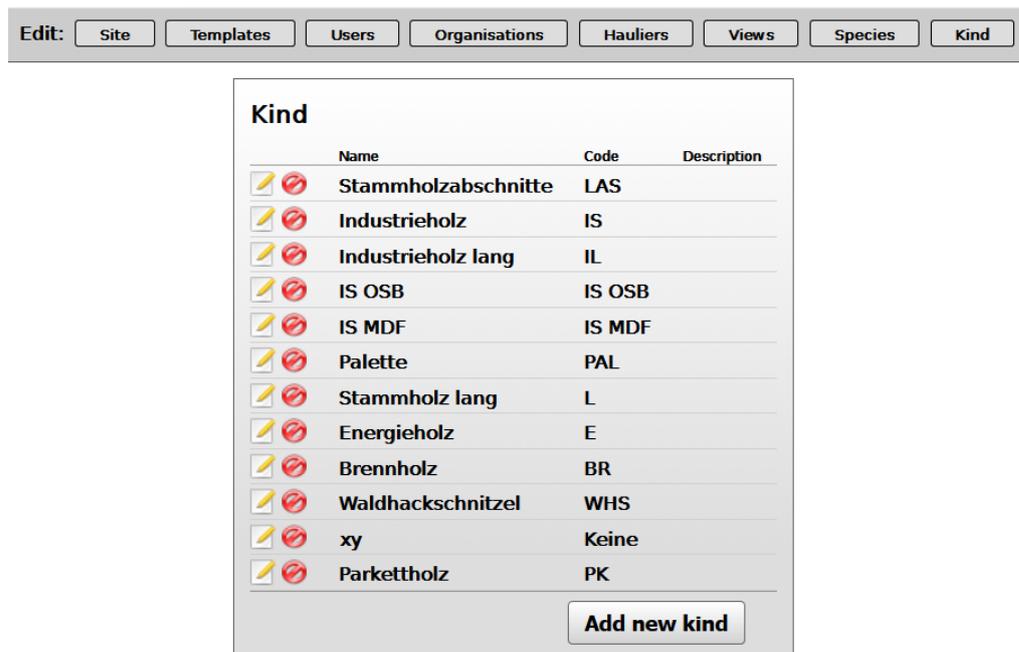
Documentation and the display of data as well as the export functions relate to their formatting.

Example lists of species and kinds corresponding to the RVR suggestion are on the right.



The 'Species' configuration page shows a table with columns for Name, Code, and Description. Each row includes edit and delete icons. An 'Add new species' button is at the bottom.

Name	Code	Description
Keine	XY	
Fichte	FI	
Kiefer	KI	
Tanne	TA	
Douglasie	DGL	
Lärche	LA	
Sonst. Nadelbäume	SNB	
Buche	BU	
Eiche	EI	
Esche	ES	
Ahorn	AH	
Linde	LI	
Robinie	ROB	
Ulme	UL	
Birke	BI	
Erle	ERL	
Sonst. LB hohe Lebensdauer	SLBH	
Sonst. LB niedrige Lebensdauer	SLBW	



The 'Kind' configuration page shows a table with columns for Name, Code, and Description. Each row includes edit and delete icons. An 'Add new kind' button is at the bottom.

Name	Code	Description
Stammholzabschnitte	LAS	
Industrieholz	IS	
Industrieholz lang	IL	
IS OSB	IS OSB	
IS MDF	IS MDF	
Palette	PAL	
Stammholz lang	L	
Energieholz	E	
Brennholz	BR	
Waldhackschnitzel	WHS	
xy	Keine	
Parkettholz	PK	

## 2.6.6 Editing, deleting timber data records and route information

In the list view, the individual data record can be edited and deleted with the "Gear icon" or route information for the selected buyer (destination) can be shown.

**mScale Test site**    Stuhlmann    Ansicht

	Polter ID	Datum	Volumen
<input type="checkbox"/>  	2019-1234-014	07-08-2019	5,59 m³
<input type="checkbox"/>  	2019-1234/013	05-08-2019	59,72 m³
<input type="checkbox"/>  	Test BLF 2	31-07-2019	134,60 m³
<input type="checkbox"/>  	Test BLF	31-07-2019	130,82 m³
<input type="checkbox"/>  	1234/34	25-07-2019	41,37 m³
<input type="checkbox"/>  	1234/34	25-07-2019	41,37 m³
<input type="checkbox"/>  		25-07-2019	1,64 m³
<input type="checkbox"/>  		25-07-2019	3,14 m³
<input type="checkbox"/>  		25-07-2019	1,19 m³

**Bearbeiten**

**Löschen**

**Route anzeigen ...**

**mScale Test site**    Stuhlmann    Ansicht

	Polter ID	Datum	Volumen	Sortimentlänge
<input type="checkbox"/>  	2019-1234-014	07-08-2019	5,59 m³	12,00 m
<input type="checkbox"/>  	2019-1234/013	05-08-2019	59,72 m³	4,00 m
<input type="checkbox"/>  	Test BLF 2	31-07-2019	134,60 m³	3,00 m
<input type="checkbox"/>  	Test BLF	31-07-2019	130,82 m³	3,00 m
<input type="checkbox"/>  	1234/34	25-07-2019	41,37 m³	5,00 m
<input type="checkbox"/>  	1234/34	25-07-2019	41,37 m³	5,00 m
<input type="checkbox"/>  	76/4	25-07-2019	1,64 m³	10,80 m

**Bearbeiten: 1234/34**

Baumart:

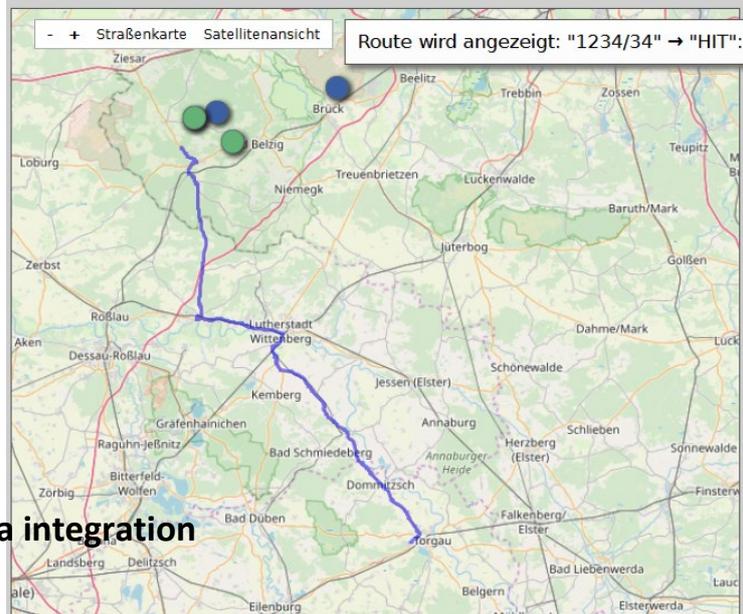
Sorte:

Verkäufer:

Käufer:

**mScale Test site**    Stuhlmann    Ansicht

Route wird angezeigt: "1234/34" → "HIT": 93.71km X



Filtern nach Datum:

von:  bis:

**Zeitraum wählen**

Heute  
Letzten sieben Tage  
Dieser Woche  
Dieser Monat

**Gemessene Werte**

Volumen:

Sortimentlänge:

Durchmesser:

sScale System:

## 2.7 API - data integration

Updated documentation of the API interface is provided under the link <http://sscale.dk/sdk.php>. If you intend to provide other software solutions in your company with direct access to the web server data, please contact us. We would like to assist with this process as needed.