



Picus Generic User guide

www.polux-technology.com



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TABLE OF CONTENTS

1	INSTALLATION ON ANDROID DEVICE	5
1.1	Bluetooth pairing between Polux and Android device	5
1.2	Software installation	6
1.3	Update	7
2	INSTALLATION ON A WINDOWS COMPUTER	8
2.1	Pairing Polux with Windows computer	8
2.2	Software installation	9
3	ACTIVATION	10
3.1	First start	10
4	PICUS MAIN SCREEN	11
4.1	Overview	11
4.2	Line selection	12
4.3	Add a new inspection	13
4.4	Edit or delete an inspection	13
5	EDIT INSPECTION SCREENS	14
5.1	Overview	14
5.2	Pole data	15
5.3	Location	16
5.4	Visual inspection	17
5.5	Polux	18
5.6	Pictures and remarks	21
6	MAIN MENU	23
6.1	Overview	23
7	SETTINGS	24

7.1	Overview	24
8	DATA EXCHANGE	25
8.1	Send data to the server	25
8.2	Manage data on a computer	26
8.3	Backup and restore	28
8.4	SFTP Folders structure	30

1 INSTALLATION ON ANDROID DEVICE

1.1 Bluetooth pairing between Polux and Android device

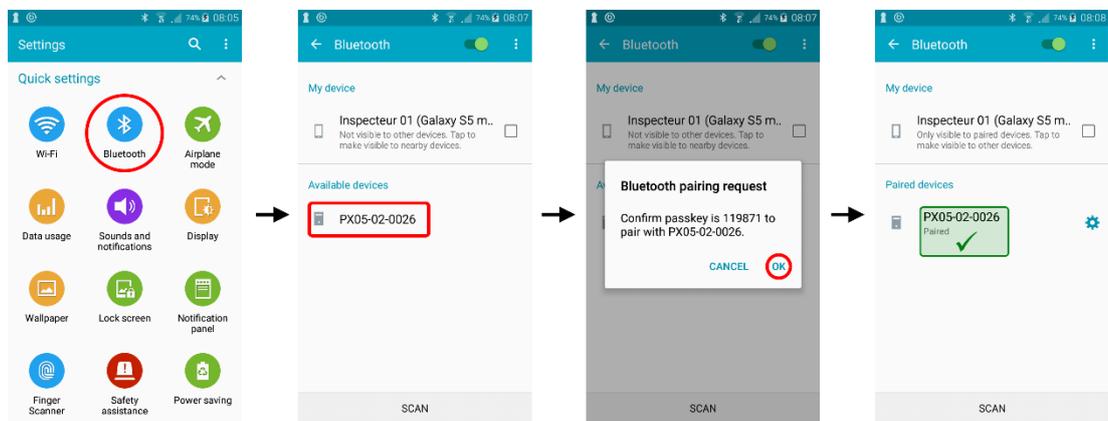
To be used with an Android device, Polux must be first paired with it through Bluetooth settings. This operation is required only once, at the first use.

1.1.1 Switch Polux device on

To be discovered by an Android device, Polux must be switched on.

1.1.2 Pair Polux with an Android device

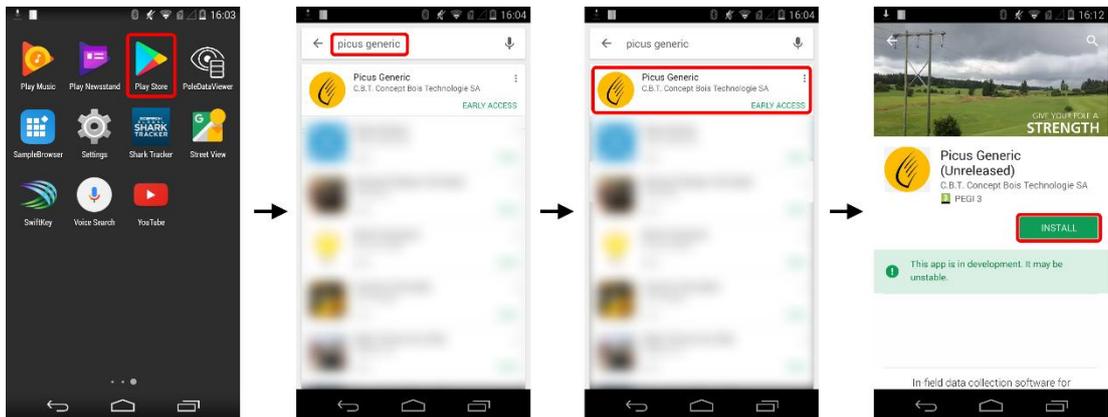
- On the Android device, select settings, and choose Bluetooth
- Wait for Polux to be identified and click on the device as proposed in the list
- Accept the default passkey
- Polux is now paired with Android device



1.2 Software installation

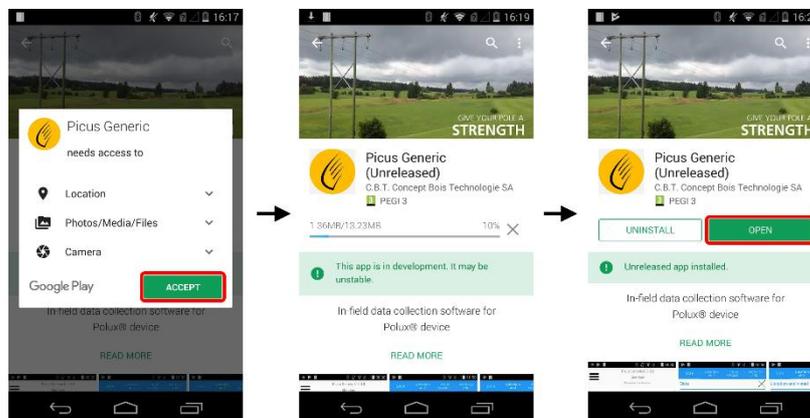
1.2.1 Start installation

- Open Play Store
- Search for "Picus Generic"
- Click on "Picus Generic" with yellow icon
- Choose "Install"



1.2.2 Wait for the installation process to be completed

- Accept the "need access" window
- Wait for download and installation to be completed
- Once installed, you can directly start the application

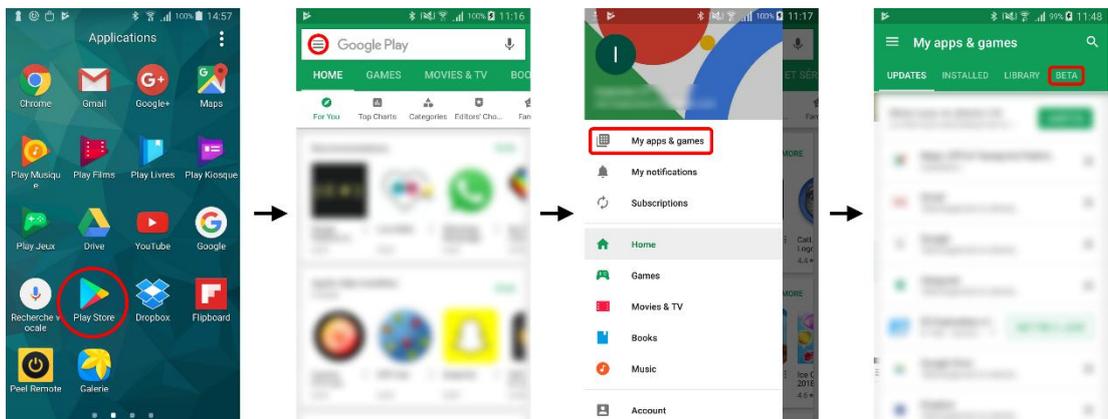


1.3 Update

Picus Generic being an application available on Google "Play Store", the program is updated automatically. Knowing that the "Play Store" application is responsible for these updates, it may sometimes be necessary to force the update to ensure the use of the latest software version.

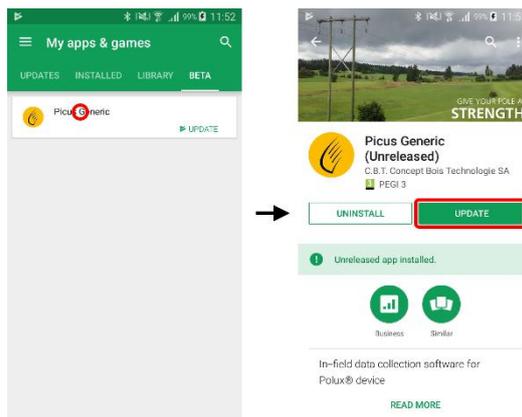
1.3.1 Viewing the list of beta apps

- Make sure the device is connected to the Internet
- Start "Play Store"
- In main menu, choose "My apps & games"
- Select "Beta" tab



1.3.2 Update Picus Generic

- Click on "Picus Generic"
- If a new version is available, the "Update" button is visible
- Click the "Update" button



2 INSTALLATION ON A WINDOWS COMPUTER

2.1 Pairing Polux with Windows computer

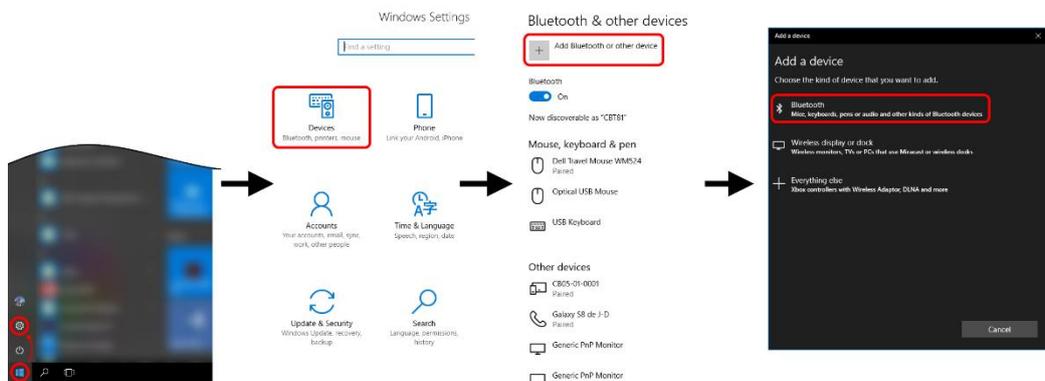
To be used with an Android device, Polux must be first paired with it through Bluetooth settings. This operation is required only once, at the first use.

2.1.1 Switch Polux device on

To be discovered by an Android device, Polux must be switched on.

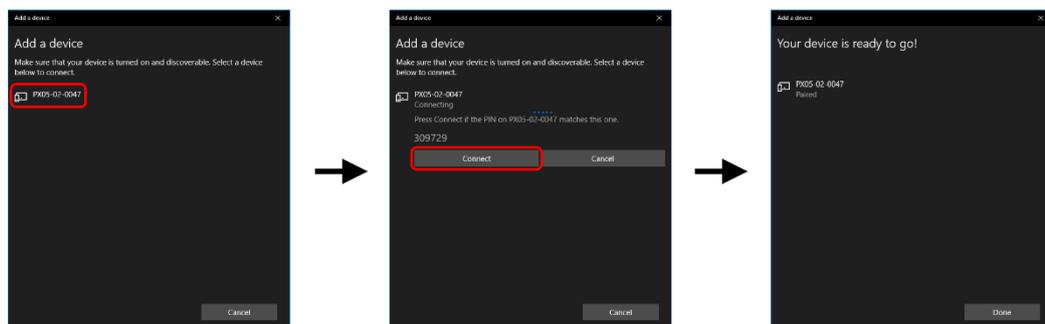
2.1.2 Start discover Polux Bluetooth device on Windows computer

- On Windows computer, click "Start button", select "Settings" and choose "Devices"
- Click "+ Add Bluetooth or other device"
- Select "Bluetooth"



2.1.3 Pair Polux device with Windows computer

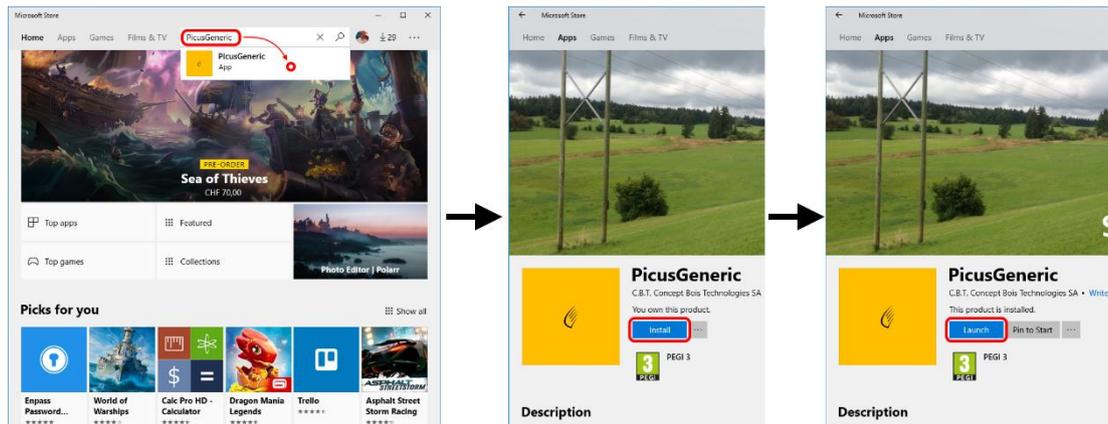
- Wait for the Polux device to be visible in the list of discovered devices
- Click on Polux name in the list
- Click on "Connect" to pair Polux with Windows computer
- Windows displays a confirmation message once Polux paired



2.2 Software installation

2.2.1 Installation using Windows Store

- Start "Microsoft Store"
- Search for "Picus Generic"
- Click on "Picus Generic" (yellow icon)
- Choose "Install"
- Once installation completed, start Picus with "Start" button
- Picus is also available in "Start Menu"



3 ACTIVATION

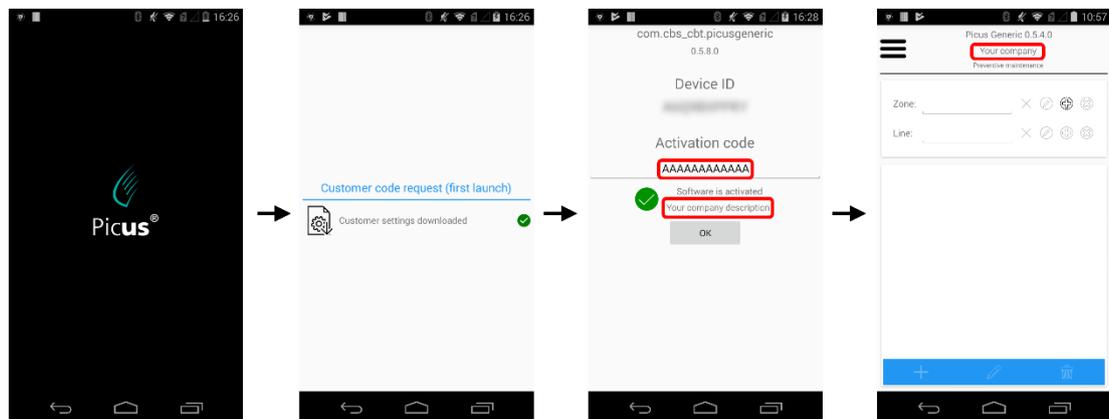
3.1 First start

Before running Picus for the first time, please ensure the handheld is connected to internet.

At the very first time Picus Generic is started on a new device, an activation code will be required.

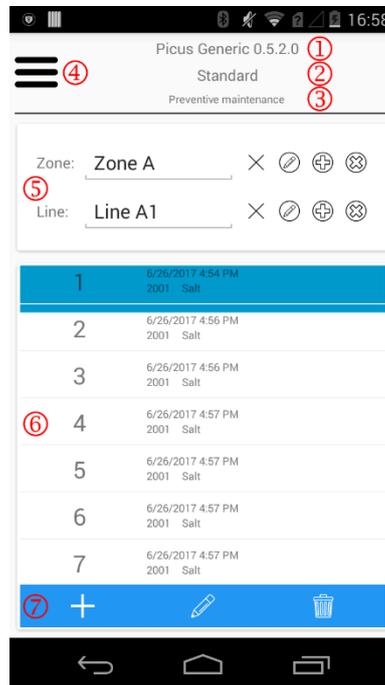
The code is alphanumerical and is composed of 12 or 16 characters.

- Wait for the application to initialize
- Wait for Picus to load customers list
- Please send your device ID to your reseller. Your reseller will then give you activation code. As soon as code is completed, customer's company name will be displayed
- Customer's company name is displayed in title part of main screen



4 PICUS MAIN SCREEN

4.1 Overview



- ① Application name and version
- ② User company name
- ③ Model type (according to the customer profile)
- ④ Main menu
- ⑤ Line selection. Each pole is attached to a line and each line is attached to a zone. This allows to have the display lighter and gives a hierarchy structure to the poles' list. Poles are then easier to find in the device's memory.
- ⑥ List of inspected poles in the selected line
- ⑦ Poles list toolbar, allows to add, edit or delete a pole

4.2 Line selection

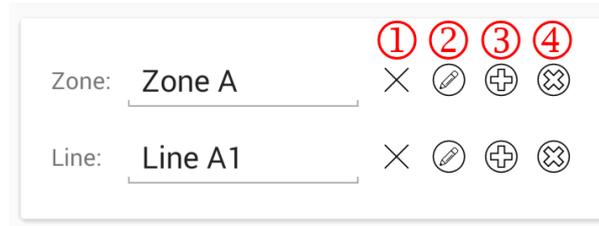
To have the poles list lighter, pole inspections are ordered by lines.

Each line is part of a zone. To be able to add, edit or delete poles, the user must first select the zone and then the line. Once the line is selected, Picus will show all the poles available in that line.

4.2.1 Line and zone dropdown list

To select an existing line or zone, please simply click the dropdown area and select the right item in the list.

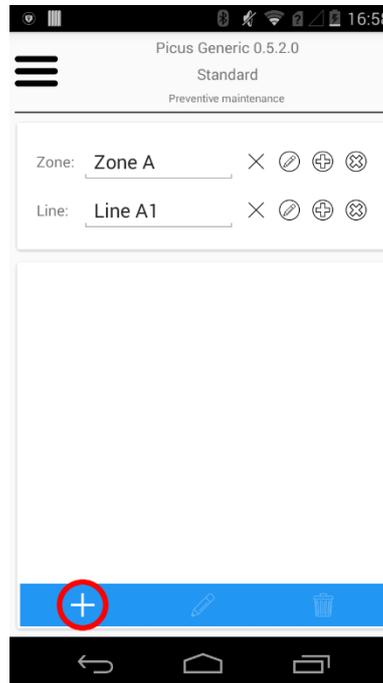
Please, find hereby the description of the tools available at the right of the dropdown list.



- ① Clears the selection. This will not delete the item, only deselect it
- ② Change the name of the selected item
- ③ Add a new item
- ④ Delete the selected item. This will permanently delete the item. A confirmation message is displayed before the item is definitively deleted.

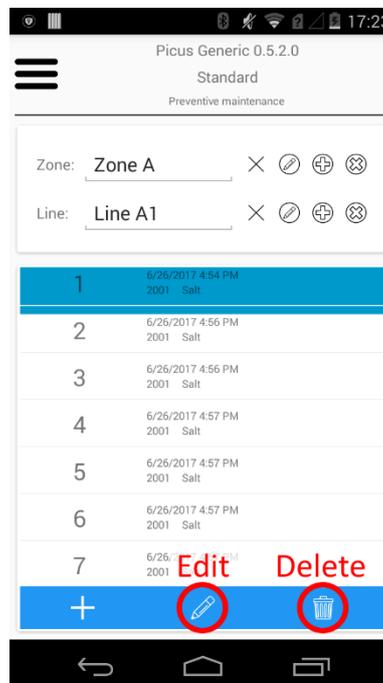
4.3 Add a new inspection

Once a line is selected, tap the "Add" button on main screen to create and then edit the new inspection.



4.4 Edit or delete an inspection

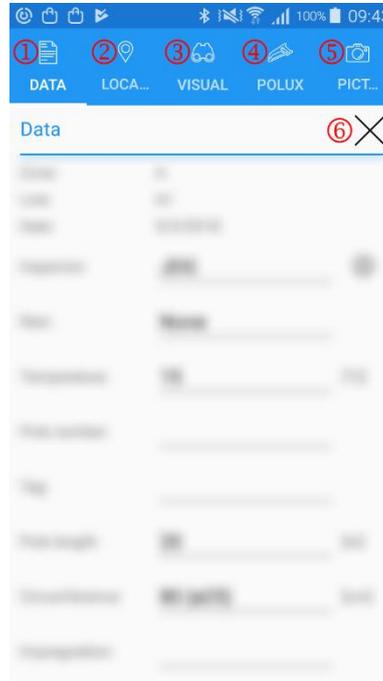
"Edit" or "Delete" buttons are activated when an inspection is selected in the list.



5 EDIT INSPECTION SCREENS

5.1 Overview

Inspection edition screen consists of a tabbed page.

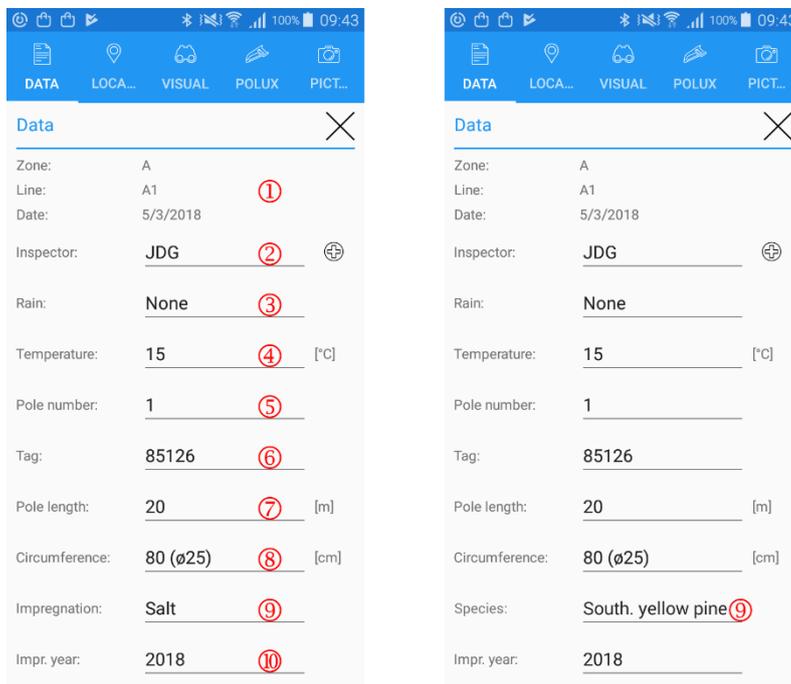


- ① Pole data tab. General information about the pole
- ② Location tab. GPS location the pole
- ③ Visual tab. Visual inspection of the pole (defects)
- ④ Polux tab. Polux measurements loading / display and pole's remaining strength evaluation
- ⑤ Pictures and remarks tab. Photo taking, displaying and deleting. Remarks about the edited inspection
- ⑥ Close button

Close button can be used at any time, no data will be lost. The modifications are automatically stored in the database as soon as a change occurs. The system back button will have same effect as close button.

5.2 Pole data

This page can change according to the company defined by "Customer code" entered at the very first Picus launch.

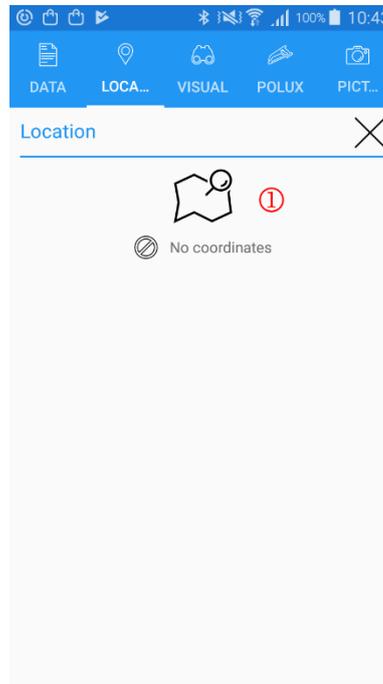


Field	Value	Unit
Zone:	A	
Line:	A1	
Date:	5/3/2018	
Inspector:	JDG	
Rain:	None	
Temperature:	15	[°C]
Pole number:	1	
Tag:	85126	
Pole length:	20	[m]
Circumference:	80 (ø25)	[cm]
Impregnation:	Salt	
Impr. year:	2018	
Species:	South. yellow pine	

- ① Pole situation summary and date of inspection. Date is filled in automatically by Picus, according to the system time settings
- ② Inspector's name. To add a new inspector, please use the  button
- ③ Rain. Provides information on measuring conditions
- ④ Temperature in Celsius or Fahrenheit degrees. Provides information on measuring conditions. System of units can be adjusted in Picus settings, please refer to "7 - Settings" section to select software options
- ⑤ Pole number. Any Alphanumeric char is allowed. Maximum length: 50 chars
- ⑥ Pole tag. Unique identifier of the pole. Can be useful if the pole is equipped with an identification label (Barcode, QR-Code, Datamatrix ...). Only numeric chars allowed. Maximum length: 8 chars
- ⑦ Pole length. Pole length in cm or feet, the system of units can be adjusted in Picus settings, please refer to "7 - Settings" section to select software options
- ⑧ Circumference of the pole at ground line. Corresponding diameter is indicated between brackets. The system of units can be adjusted in Picus settings, please refer to "7 - Settings" section to select software options
- ⑨ Impregnation type (standard calculation model) or wood species composing the pole (multivariate calculation model)
- ⑩ Impregnation year, age of the pole is calculated according to this value

5.3 Location

5.3.1 Overview



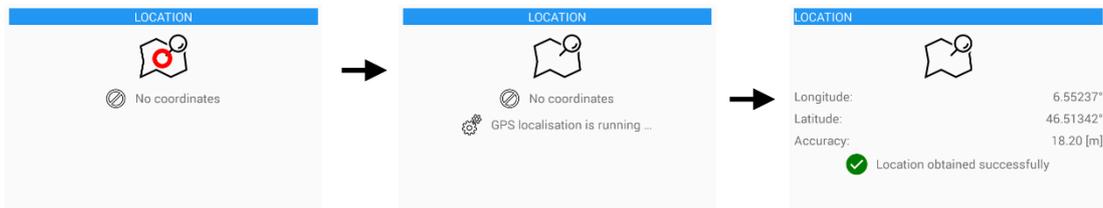
① GPS location, please refer to the next point to learn about getting coordinates

5.3.2 Acquiring GPS location

Picus allows the user to give a spatial information to the inspection, it can acquire GPS coordinates from the device.

To acquire GPS data, please:

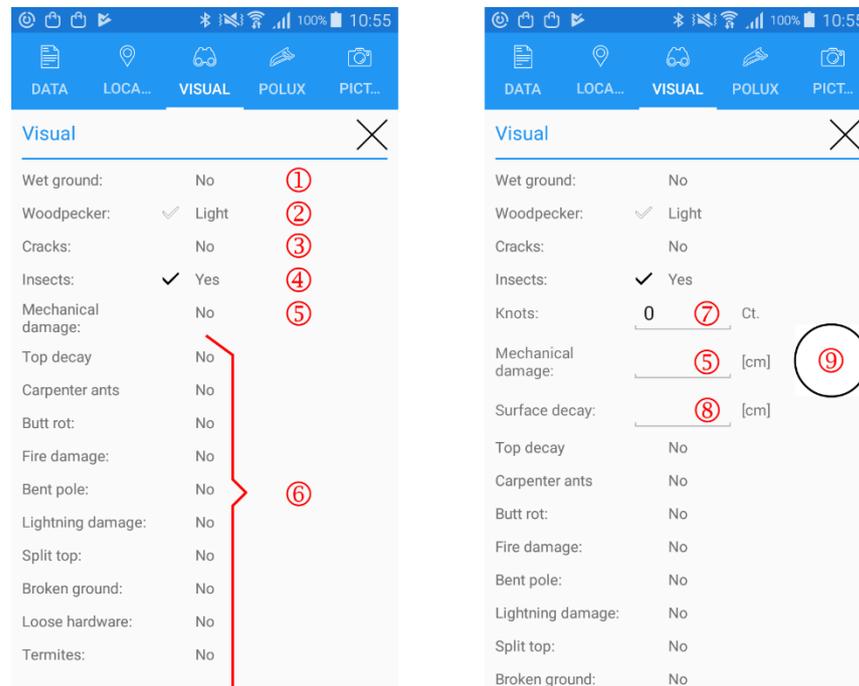
- Make sure your device has the GPS status ON
- Click the "GPS" button
- Wait for Android device to acquire coordinates. Timeout and desired accuracy can be set in Picus settings, please refer to "7 - Settings" section to select the options
- In case of success, Picus will automatically assign coordinates to the pole



Picus not only stores longitude and latitude, but also the estimated accuracy. Accuracy may vary according to device type and satellites exposure

5.4 Visual inspection

5.4.1 Overview



- ① Wet ground, used in Polux calculation
- ② Presence of woodpecker holes. This defect can have up to three status: no / light¹ / yes
- ③ Presence of wood cracks. This defect can have up to three status: no / light¹ / yes
- ④ Presence of insects. This defect can have up to three status: no / light¹ / yes
- ⑤ Mechanical damage. Depending Picus settings, this defect can either be a check box type or request a numeric value
- ⑥ Extended visual inspection. Activation of these items can be defined in the settings, refer to section "7 - Settings" for more information
- ⑦ Number of knots per visual inspection (based on standards considerations)
- ⑧ Surface decay. Enter surface decay depth in inches or centimetres
- ⑨ Illustration of the surface decay and mechanical damage (if any) compared to the pole's circumference

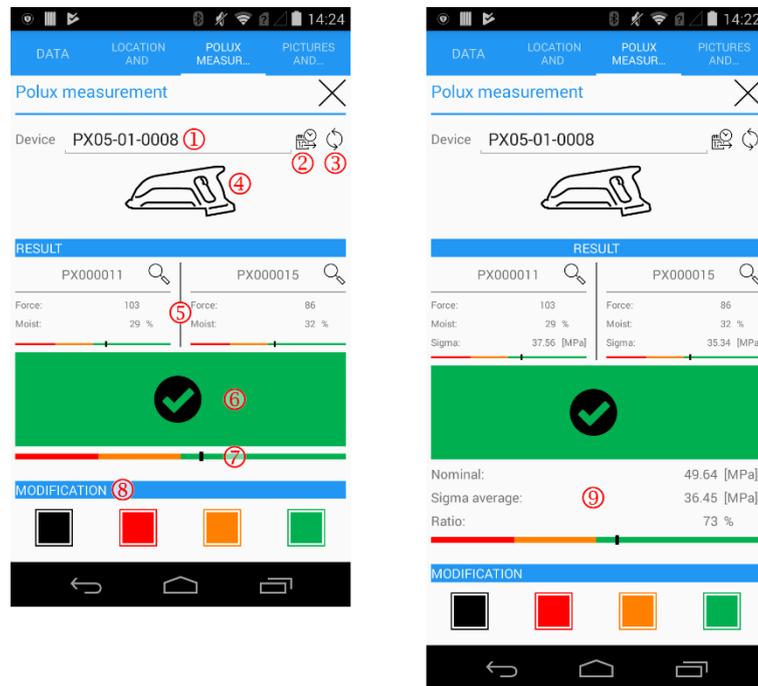
Visual inspection fields have an influence on Polux calculation. It is therefore important to have followed the Polux training in order to correctly determine the values to be assigned.

Extended visual inspection fields have no influence on the calculation of Polux result.

¹ According to Picus settings, the "light" state can be inexistent

5.5 Polux

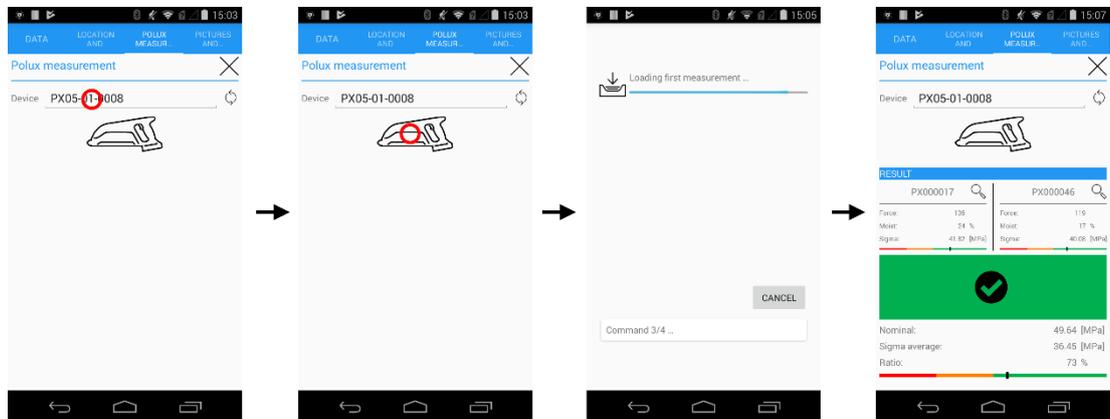
5.5.1 Overview



- ① Polux device selection. Select the Polux device to communicate with. The last selection is kept in memory
- ② Update Polux date and time. Picus will use the date and time of the computer to update the one of the Polux
- ③ Update devices list. Allow to update list when a Polux device has just been paired through Android's Bluetooth settings
- ④ Collect the two last Polux measurements. The estimated remaining strength calculation is based on these two measurements
- ⑤ Summary of relevant values for the both measurements
- ⑥ Main result from Polux measurement. Gives an indication on how to consider the pole. Please refer to Polux training for this result interpretation
- ⑦ This bar gives a visual representation of the pole's quality
- ⑧ Allows the inspector to change the purposed maintenance given by Polux
- ⑨ Summary of multivariate calculation.
 Nominal: Nominal strength according species and pole's length given in the standards
 Sigma average: Remaining average strength at the ground line estimated by Polux
 Ratio: Comparison between the estimated remaining strength and the nominal value

5.5.2 Download Polux measurements

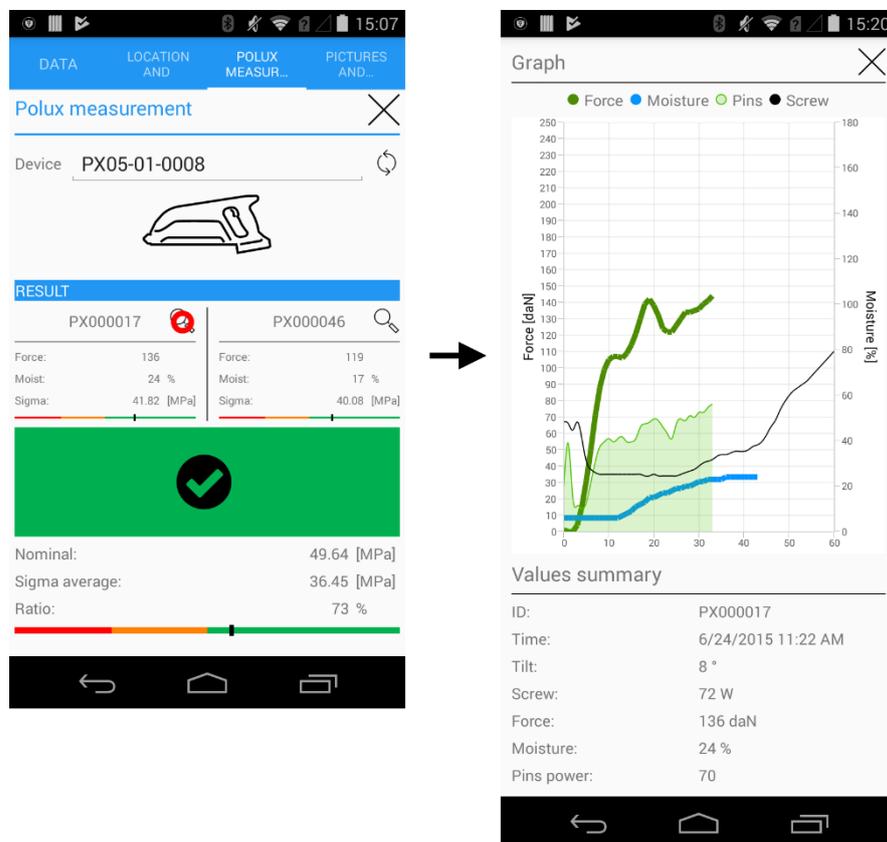
- Select the right Polux device
- Click "load measurements" button
- Picus will connect to Polux and download the last two measurements
- Picus will then calculate the estimated remaining strengths and display the result



5.5.3 Measurement details

Picus can display the measurements detail to the inspector: all the registered graphs and a summary of the measured values.

To display measurements detail, please tap on the loop located at the right of the measurement summary title.



5.5.4 Charts on SFTP server

Charts of all measurements are downloaded when data are sent to the server. Please refer "8.1.1 - Send the data to the server" to learn more about data transfer.

One PNG file per chart is sent to the server.

These files are stored in the "Charts" subfolder of the data folder.

Each inspection has its own unique ID. The first column of data Excel file displays that ID, each chart file is named with that ID, followed by the ID of the measurement which is given in column " Measurement 1" or "Measurement 2".

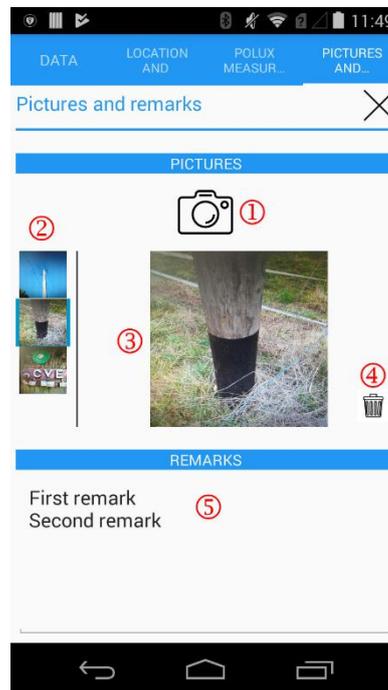
Identification				Polux measurement							
ID	Zone	Line	Pole number	Device	Measurement 1	Force 1	Moisture 1	Sigma 1	Result 1	Measurement 2	
							[%]	[PSI]			
1	Test	1	1	PX05-02-0020	PX000052	123	4	56.7	Green	PX000053	
2	Test	1	2	PX05-02-0020	PX000054	123	4	56.7	Green	PX000055	

For example, chart named as "000001[PX000052].jpg" is the chart corresponding to the first Polux measurement for inspection with the ID = 1.

Please refer to "8.4 - SFTP Folders structure" to see a map of folders structure on the SFTP server.

5.6 Pictures and remarks

5.6.1 Overview

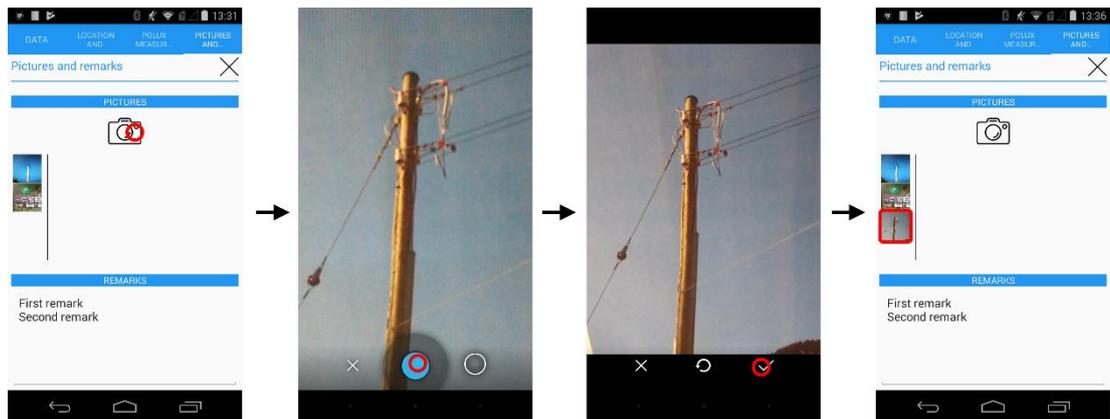


- ① Take a picture. Please see next point for detailed explanation on taking picture
- ② List of taken pictures for current inspection. Scroll the list vertically to browse among thumbnails
- ③ Large picture preview. Selected thumbnail in the left sided list is displayed in large size
- ④ Delete the selected picture. Warning! No confirmation message will be displayed before picture deletion
- ⑤ Remarks on inspection. This text entry is a multiline box allowing multiple remarks

5.6.2 Picture taking

To take a picture:

- Tap on "Camera" button. This will launch the default camera application of the Android device
- Adjust image and click the snapshot button
- Confirm the picture. Retry or cancel operations are also available
- The picture now appears in the thumbnail list



5.6.3 Pictures on SFTP server

Pictures files are downloaded when data are sent to the server. Please refer "8.1.1 - Send the data to the server" to learn more about data transfer.

One JPEG file per picture is sent to the server.

These files are stored in the "Pictures" subfolder of the data folder.

Each inspection has its own unique ID. The first column of the data Excel file displays that ID, each picture file is named with that ID, followed by an index.

Identification			
ID	Zone	Line	Pole num
1	Test	1	1
2	Test	1	2

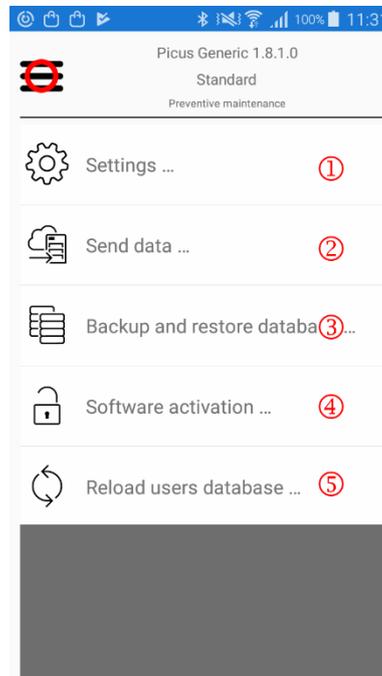
For example, picture named as "000004[00].jpg" is the first picture taken for the inspection with the ID = 4.

Please refer to "8.4 - SFTP Folders structure" to see a map of folders structure on the SFTP server.

6 MAIN MENU

6.1 Overview

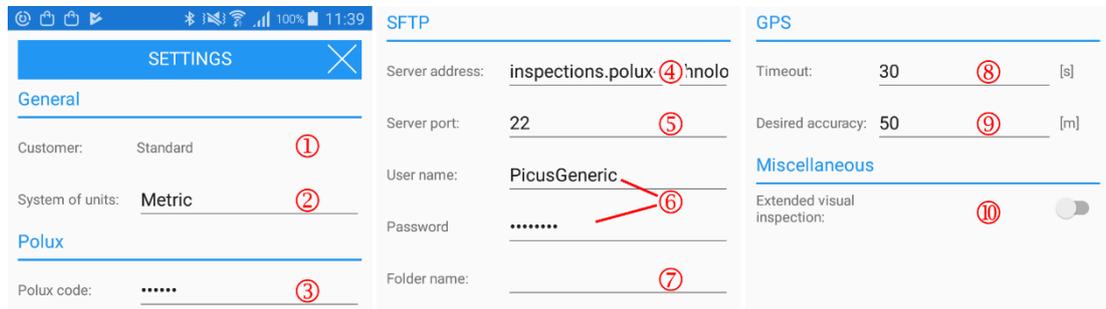
Click on "Main menu" button at the top left of the main screen to display the main menu.



- ① Edit Picus settings
- ② Send inspection to the SFTP server. The inspection's data will then be available to download from any computer with an Internet connection. Please refer to "8.1 - Send data to the server" for more information
- ③ Backup or restore data to SFTP server for debugging or security purposes. Please refer to "8.3 - Backup and restore" for more information
- ④ Change activation code of Picus software. For example, this allows to modify calculation mode
- ⑤ Allows to change preconfigured companies list. Mainly used in coordination with activation code change. Device must be connected to Internet

7 SETTINGS

7.1 Overview



- ① Customer name, this is the user's company name
- ② Allow to choose the units' system between "Metric" and "Imperial"
- ③ Polux code used to communicate with the device. Default code is "ABCDEF"
- ④ SFTP server address where to send the data. Please keep the default value (<https://inspections.polux-technology.com>) to use CBS-CBT's server
- ⑤ SFTP server port. Please keep the default value (22) for CBS-CBT's server
- ⑥ User name and password to use in order to connect to the SFTP server. If using CBS-CBT's server, please contact CBS-CBT to receive login details
- ⑦ SFTP subfolder name. Name of the "inspection" (data) directory's subfolder created when synchronizing data from the Android device to the SFTP server. Please avoid special characters, like "/", "\", ":", "*", "\$". Please refer to the point "8.4 - SFTP Folders structure" for a detailed map of folder's structure on the SFTP server.
- ⑧ Timeout to acquire GPS coordinates. Please refer to "5.3.2 - Acquiring GPS location" for more information about coordinates collection. If no coordinate has been acquired once the timeout is elapsed, coordinate acquisition will fail. "Accuracy" and "Timeout" settings are strongly linked
- ⑨ Set the desired accuracy for GPS acquisition. Please try several accuracies on your device to find which one fits your needs better. Too much accuracy can be a cause for the measurement to fail
- ⑩ Enabling this option will display extended inspection fields in "Visual" tab of the inspection edition page

8 DATA EXCHANGE

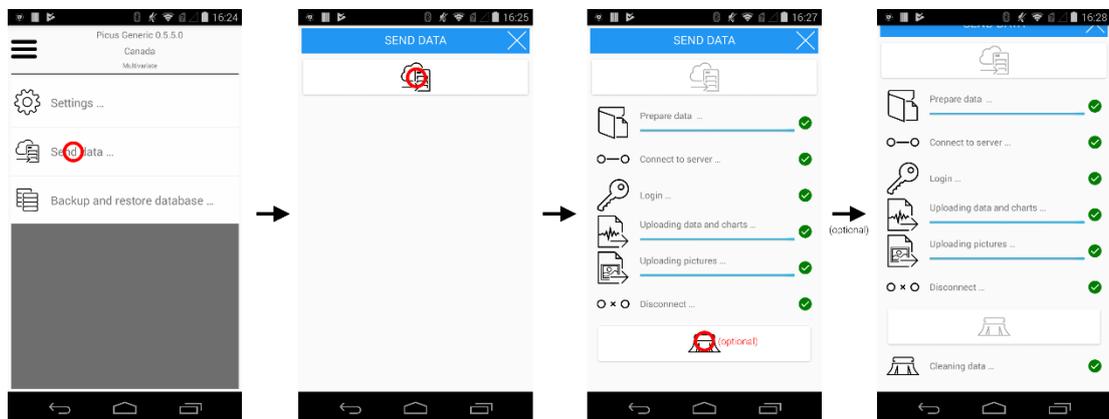
8.1 Send data to the server

This will copy inspections data to the SFTP server. The data will then be available on a secured FTP server for downloads. Inspection data are stored on the server in an Excel 2007 (xlsx) format. Pictures are in JPEG, and charts (graphs of Polux measurements) in PNG formats.

To send the data to the SFTP server, the Android device must be connected to Internet.

8.1.1 Send the data to the server

- Ensure that the Android device is connected to Internet
- Select "Send data" in main menu
- Click on "Start send" button
- Picus will connect to the SFTP server and send the data to the server
- (Optional) Once the data are sent, a clear button appears () . This is to clear all Picus data from the Android device, meaning that no more inspection will be present anymore on the device
- (Optional) If clear button was pressed, Picus erases the database. Once finished the zone and line dropdown list in main screen will also be empty.

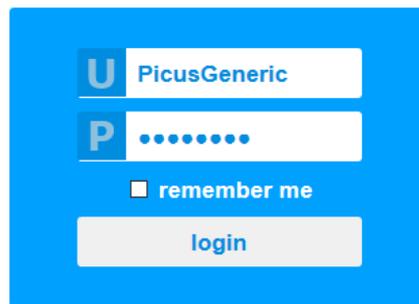


8.2 Manage data on a computer

Inspections data can be downloaded from the SFTP server on any computer with an Internet connection.

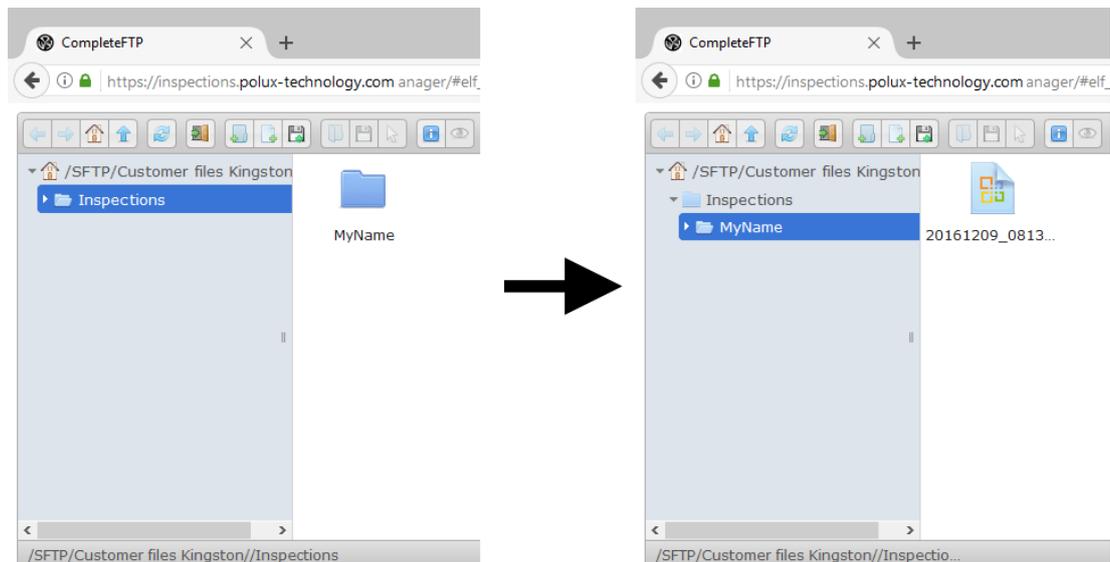
8.2.1 Connect to SFTP server

On a web browser, connect to <https://inspections.polux-technology.com> (please notice the "s" after http") and enter the username and password provided by CBS-CBT.



8.2.2 Browse for the Excel data file

The Excel file can be found in the corresponding sub-folder of "Inspections" directory. The name of this sub-folder can be set in "Settings" menu from Picus.



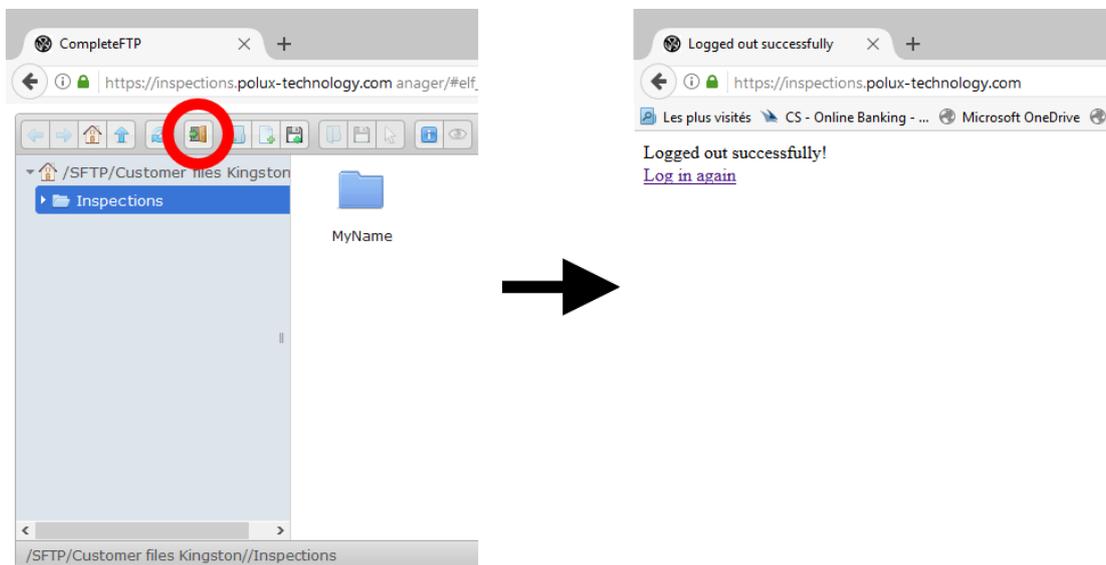
8.2.3 Download data file

Double-click on the file to be downloaded and edit it.

Identification			Inspection				Location			Visual inspection				
ID	Zone	Line	Pole number	Time	Inspector	Temperature [°F]	Rain	Longitude	Latitude	Accuracy	Wet ground	Woodpecker	Cracks	Insects
1	Test	1	1	13:12:02	Yann		None	1.2345678	1.2345678	10				
2	Test	1	2	13:33:37	Jamie		None	1.2345678	1.2345678	20			Light	

8.2.4 Logout from the SFTP server

Please logout from the SFTP server once finished.



8.3 Backup and restore

8.3.1 Principle

The goal of this function is to offer the possibility to make a backup of the database on the SFTP server. It's more likely a way to exchange data between software engineer or data analyst and the user.

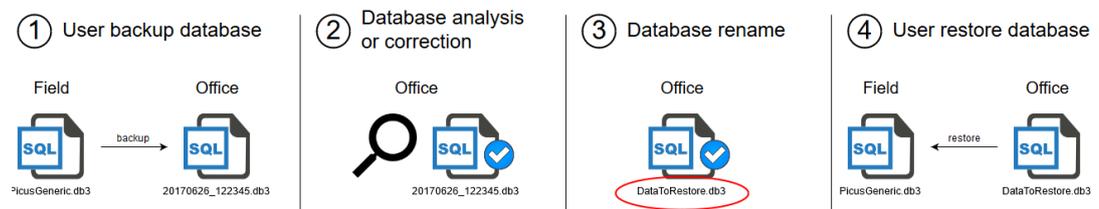
This will make a backup or restore the database only (no pictures, no charts) in SQLite format (a ".db3" file).

The file is stored on the SFTP server in "Backup" subfolder of the defined SFTP folder. To understand backup location, please refer to "8.4 - SFTP Folders structure" chapter.

Data can then be examined and eventually sent to CBS-CBT for debugging or analysis.

Once the database has been analysed or corrected, it can be renamed into "DataToRestore.db3", so Picus will know this is the correct file version to restore.

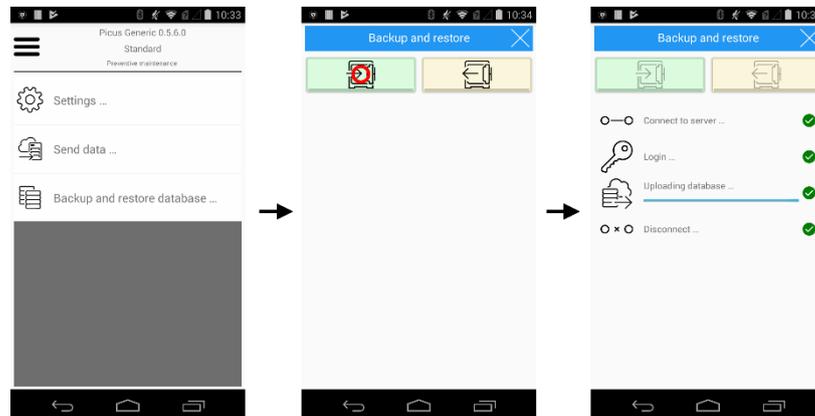
Here is a schema of backup / restore principle:



8.3.2 Backup database

To send database to the SFTP server, please:

- Ensure that the Android device is connected to Internet
- Select "Backup and restore database" in main menu
- Click on "Start backup" button
- Picus will connect to the SFTP server and send backup data to the server



8.3.3 Restore database

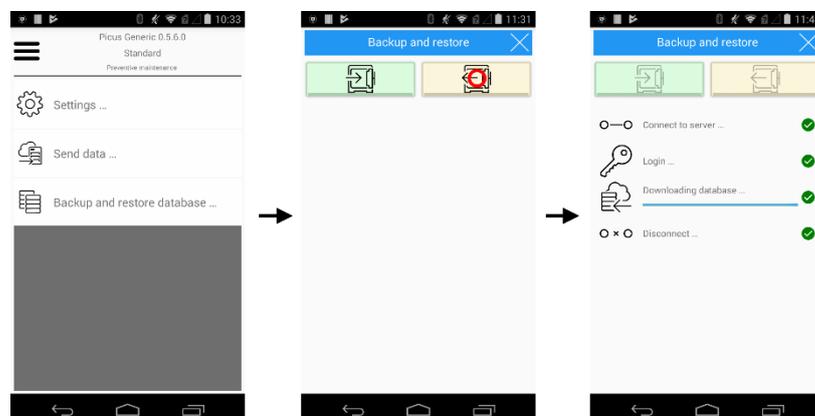
The user can restore a database that was backed up. But before this, the IT engineer had to rename the database file so that Picus can know which version to restore.

Warning

Restore database will replace the existing data

To restore database from the SFTP server, please:

- Ensure that the Android device is connected to Internet
- Select "Backup and restore database" in the main menu
- Click on "Start restore" button
- Picus will connect to the SFTP server and restore the database



8.4 SFTP Folders structure

For information, please find below a schema that summarizes the directory structure of the SFTP server.

