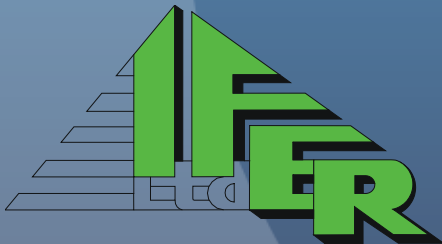


New Features of Field-Map

Version (X4) X5



IFER - Monitoring and Mapping Solutions Ltd.

<http://www.field-map.com>

Basic information

- New generation of Field-Map
- Delphi XE6/7
- Direct support of modern Unicode databases
- New look
- Web and on-line oriented functions
- Database Query Tool
- Group of new scripting functions, procedures and properties
- Many improvements in existing functions
- Up-to-date on-line and off-line documentation and helps with new examples

Databases available in Field-Map X5

- **Firebird**
 - Local
 - Server
- MSSQL (2012)
 - Local (*available only for OS Windows 7 and newer*)
 - Server
- MS Access
- *Paradox*

Firebird

- Default database in Field-Map since the version X4
- Advantages
 - Speed
 - Free
 - Unicode
- Disadvantages

Name ^ Ext	Size	Date	Time	Attr
↑..		DIR 23.9.2014	9:11:24	
Export		DIR 23.9.2014	9:20:44	
LookupTables		DIR 23.9.2014	8:57:48	
MapLayers		DIR 23.9.2014	8:57:56	
Maps		DIR 23.9.2014	8:57:48	
Misc		DIR 23.9.2014	8:57:48	
Pictures		DIR 23.9.2014	8:57:48	
StemAnalyst		DIR 23.9.2014	8:57:50	
Videos		DIR 23.9.2014	8:57:48	
Voice		DIR 23.9.2014	8:57:56	
FIELDMAPDATA_EXAMPLEPROEJCT_FB_LDB.FDB	2 514 944	23.9.2014	9:24:34	A

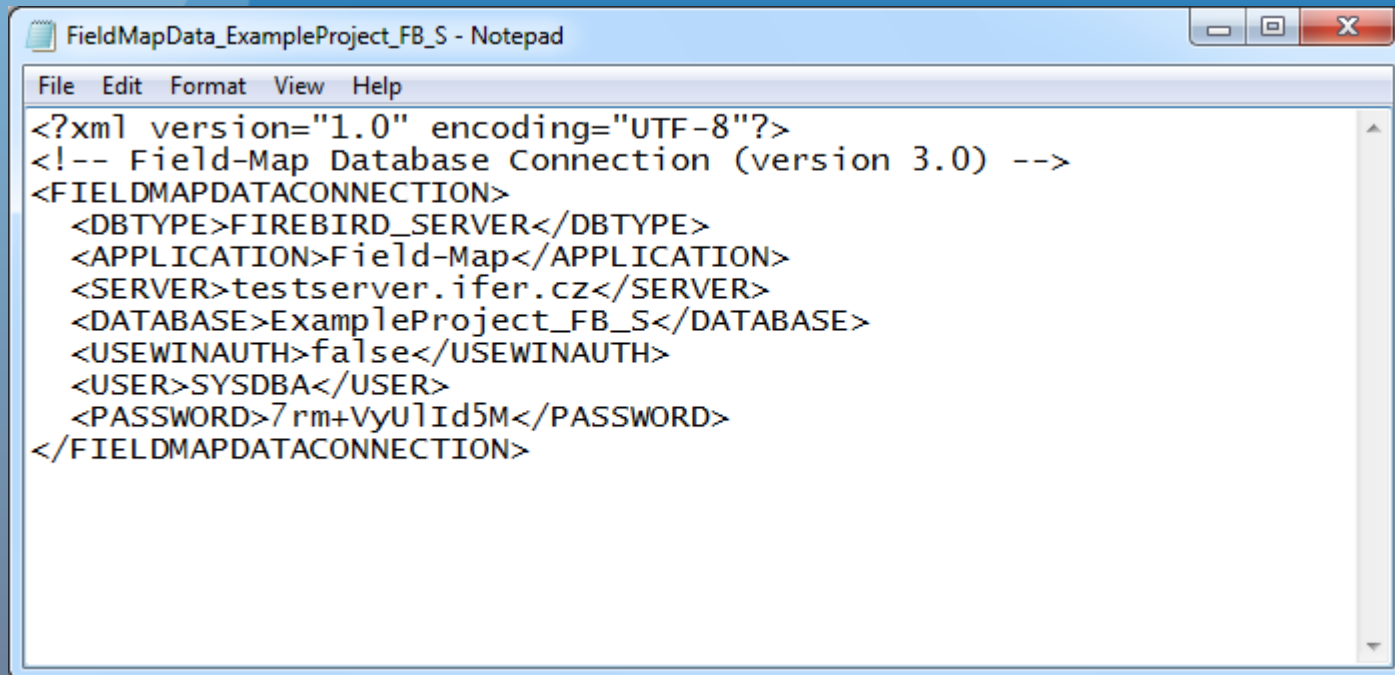
MSSQL Local

- Advantages
 - Free
 - Support
 - Unicode
- Disadvantages
 - Speed

Name ▲ Ext	Size	Date	Time	Attr
↑...		DIR 23.9.2014	16:46:25	
📁 LookupTables		DIR 23.9.2014	16:46:17	
📁 MapLayers		DIR 23.9.2014	16:46:17	
📁 Maps		DIR 23.9.2014	16:46:17	
📁 Misc		DIR 23.9.2014	16:46:33	
📁 Pictures		DIR 23.9.2014	16:46:17	
📁 Videos		DIR 23.9.2014	16:46:17	
📁 Voice		DIR 23.9.2014	16:46:17	
📄 FieldMapData_FieldMapProject1.ldf	1 048 576	23.9.2014	16:46:33	A
📄 FieldMapData_FieldMapProject1.mdf	4 259 840	23.9.2014	16:46:33	A

MSSQL server and Firebird server

- When connecting to server, Field-Map creates XML file with server connection details and stores it instead of database in the folder of the project
- XML file has a very simple structure and can be shared



```
FieldMapData_ExampleProject_FB_S - Notepad
File Edit Format View Help
<?xml version="1.0" encoding="UTF-8"?>
<!-- Field-Map Database Connection (version 3.0) -->
<FIELDMAPDATACONNECTION>
  <DBTYPE>FIREBIRD_SERVER</DBTYPE>
  <APPLICATION>Field-Map</APPLICATION>
  <SERVER>testserver.ifer.cz</SERVER>
  <DATABASE>ExampleProject_FB_S</DATABASE>
  <USEWINAUTH>>false</USEWINAUTH>
  <USER>SYSDBA</USER>
  <PASSWORD>7rm+VyU1Id5M</PASSWORD>
</FIELDMAPDATACONNECTION>
```

MSSQL server and Firebird server

- Firebird Server

- Advantages

- Free
- Unicode
- Many free tools for managing

- Disadvantages

- Speed
- Freeware

- MSSQL Server

- Advantages

- Speed
- Technical support
- Unicode

- Disadvantages

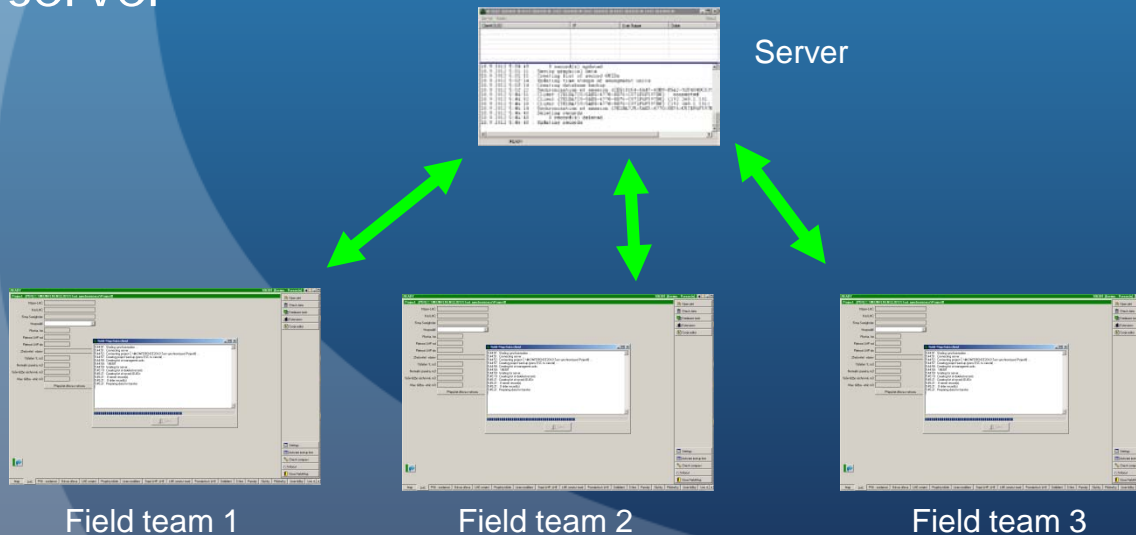
- Price
- Commercial software

Comparing all supported databases

	Max DB size	Max row size	Max columns per row	Max blob size	Max character size
Paradox	2 GB	?	?	256 MB	255 B
Access	2 GB	16 MB	255	1 GB	255 B
MSSQL	4 GB	Unlimited	1024	2 GB	4000
Firebird	Unlimited (more than 32 TB)	65,536 B	Depends on data types used	2 GB	32,767 B

Data synchronization

- Especially useful when many field teams are working on the same project
- Each team has its part of database and uploads own data to central database on the server
- Both geographical and non-geographical data can be stored on the server

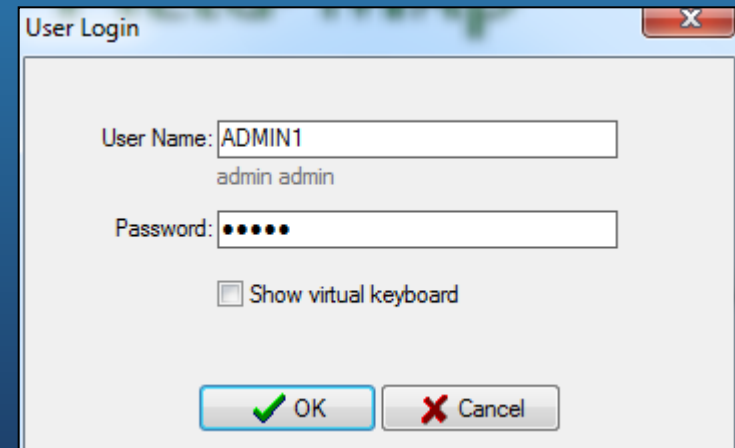
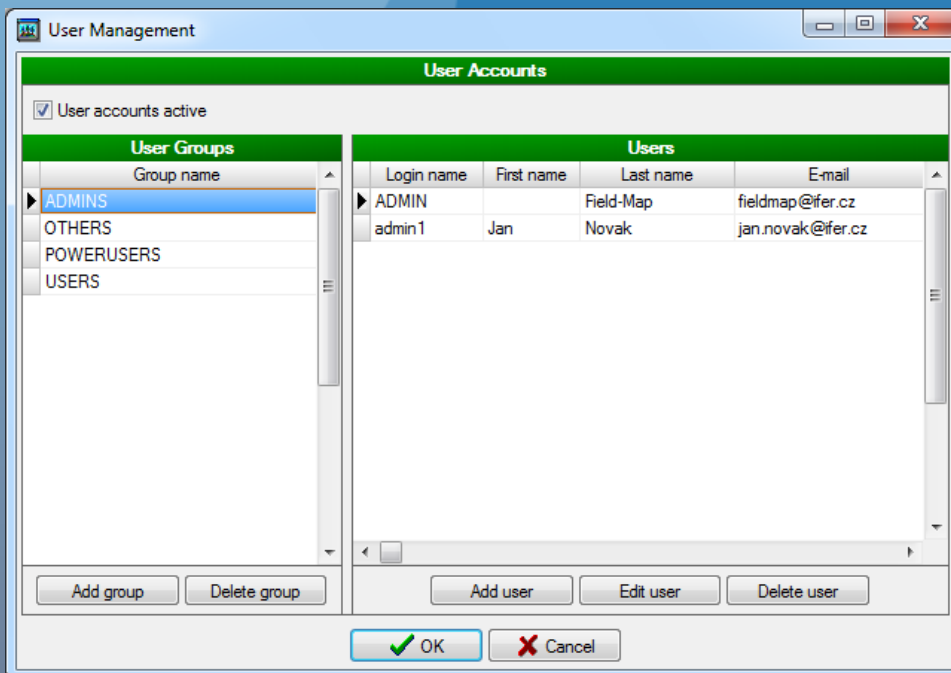


Data synchronization

- Data synchronization
- GIS data synchronization
- Synchro Journal
 - Transfer Field-Map project structure
 - Transfer Lookup tables
 - Transfer Other file
- Synchro Log
- Send messages
- Supported in scripting

User Accounts

- Can be set in FM Project Manager
- Four predefined groups of users and other „user defined“ with different rights



User Accounts

- Admins are available to manage User account system, i.e. make it (in)active, add/delete/edit other users, ...
- Power users are allowed to manage central database, projects structure, lookup lists and distribute plots via synchronization
- Other rights to be defined using scripts

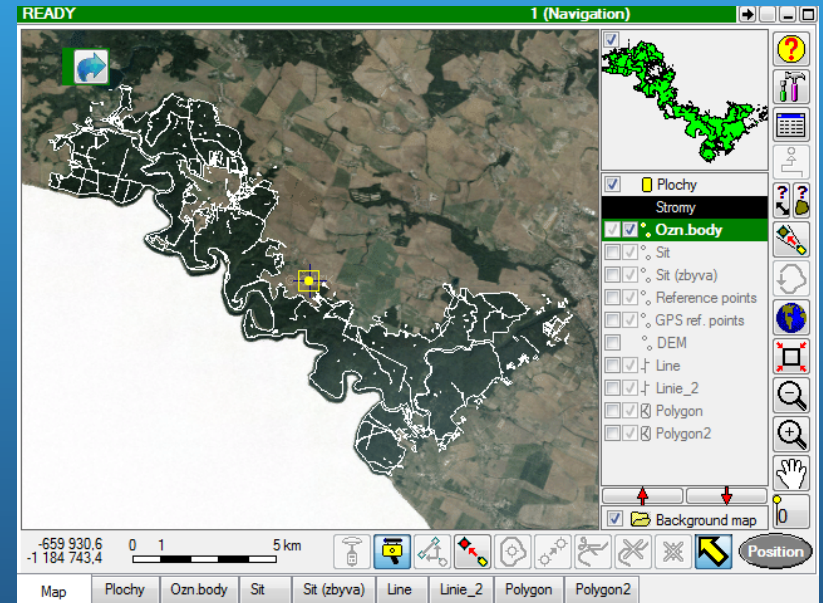
Predefined groups of users

	Admins	Powerusers	Users	Others
Management of User accounts	Light Green	Dark Red	Dark Red	Dark Red
Management of Synchro Journal	Light Green	Light Green	Dark Red	Dark Red
Uploading of data collected in the field to server	Light Green	Light Green	Light Green	Light Green
Sending messages via synchronization	Light Green	Light Green	Light Green	Light Green
Changing own password	Light Green	Light Green	Light Green	Light Green

WMS servers

- Great source of background maps

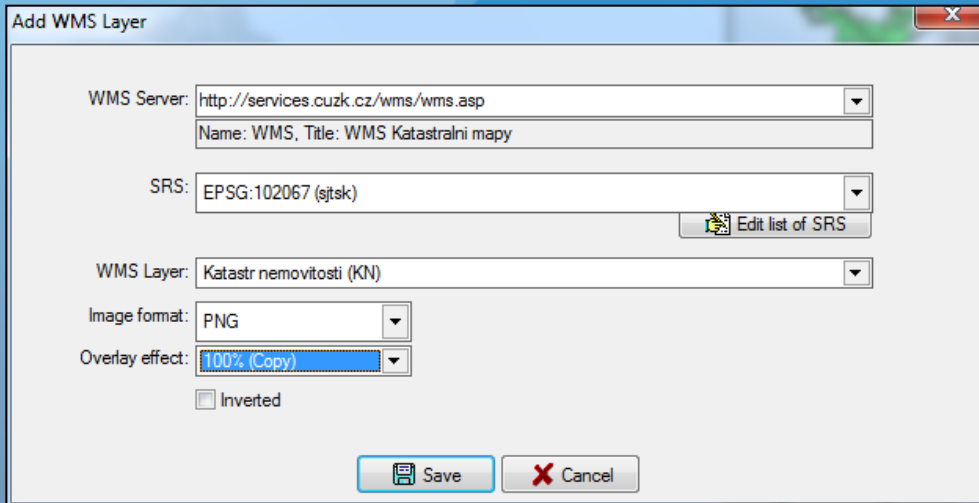
- Field-Map supports opening WMS maps from all free WMS servers



- Store WMS connection to a XML file and share it with other colleagues or projects

WMS servers

Simple acquirement of the map from WMS server directly to Field-Map Data Collector



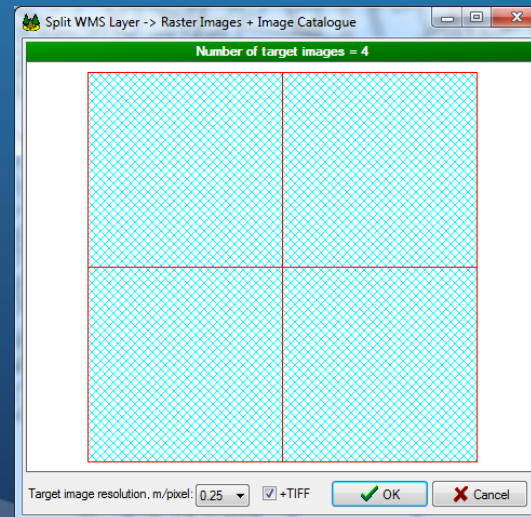
The screenshot shows a dialog box titled "Add WMS Layer" with the following fields and options:

- WMS Server: (dropdown arrow)
- Name: WMS, Title: WMS Katastralni mapy
- SRS: (dropdown arrow) with an "Edit list of SRS" button
- WMS Layer: (dropdown arrow)
- Image format: (dropdown arrow)
- Overlay effect: (dropdown arrow)
- Inverted
- Buttons: Save, Cancel

Different image formats of downloaded map and image effects (e.g., overlay) supported

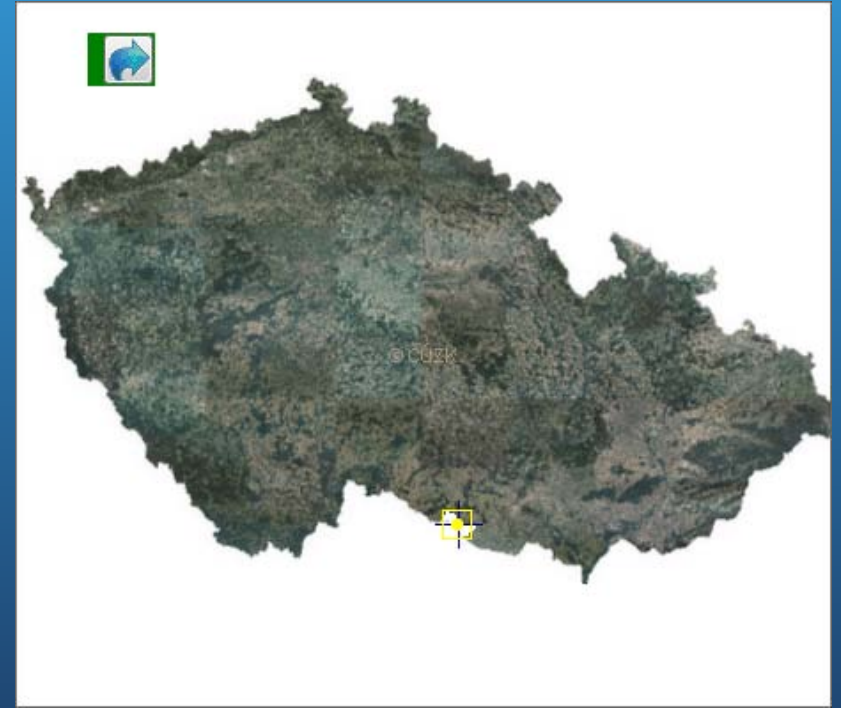
WMS servers

- WMS serves are supported in map composition
- Supported combination of more WMS servers at the same moment
- Download and storage of images from WMS server (off-line usage like image catalogue)



WMS servers

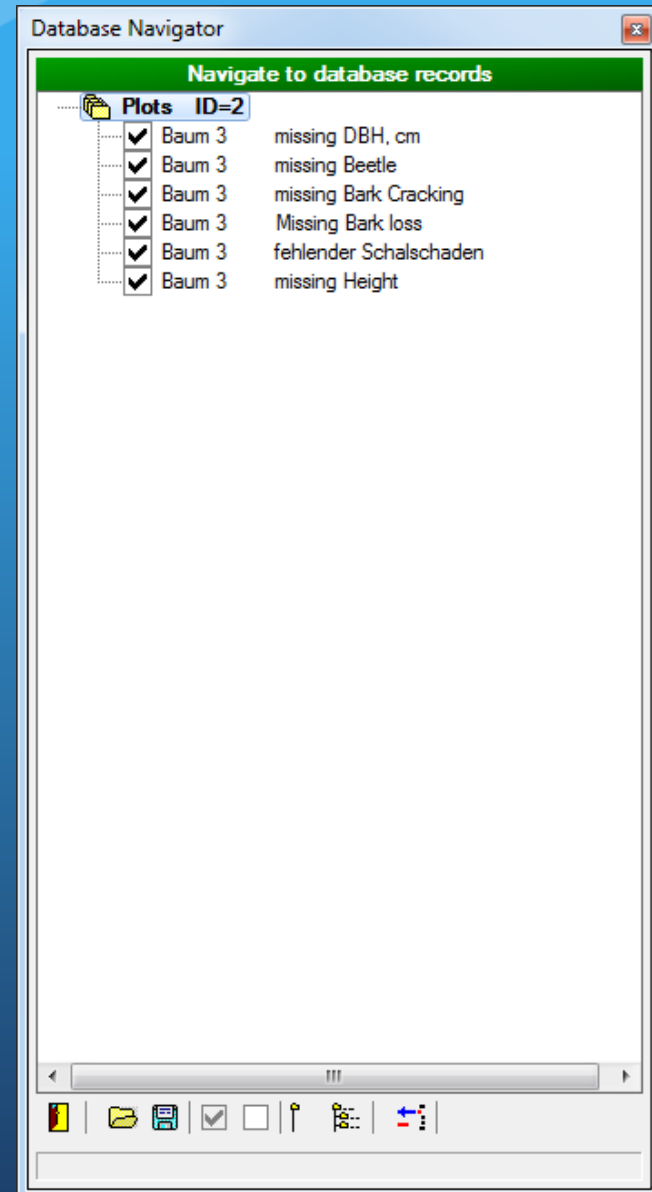
There's no problem for Data Collector to briefly visualize maps ...
... with high spatial resolution ...



... or covering large areas.

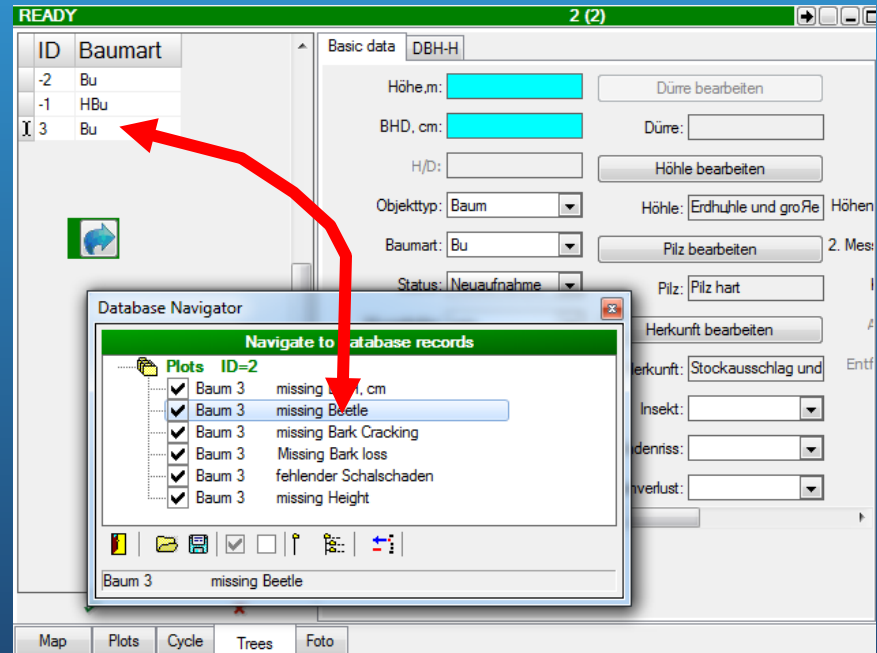
Navigator

- Tool which substantially increases the speed of searching of database records/errors
- Implemented into FM Data Collector



Navigator

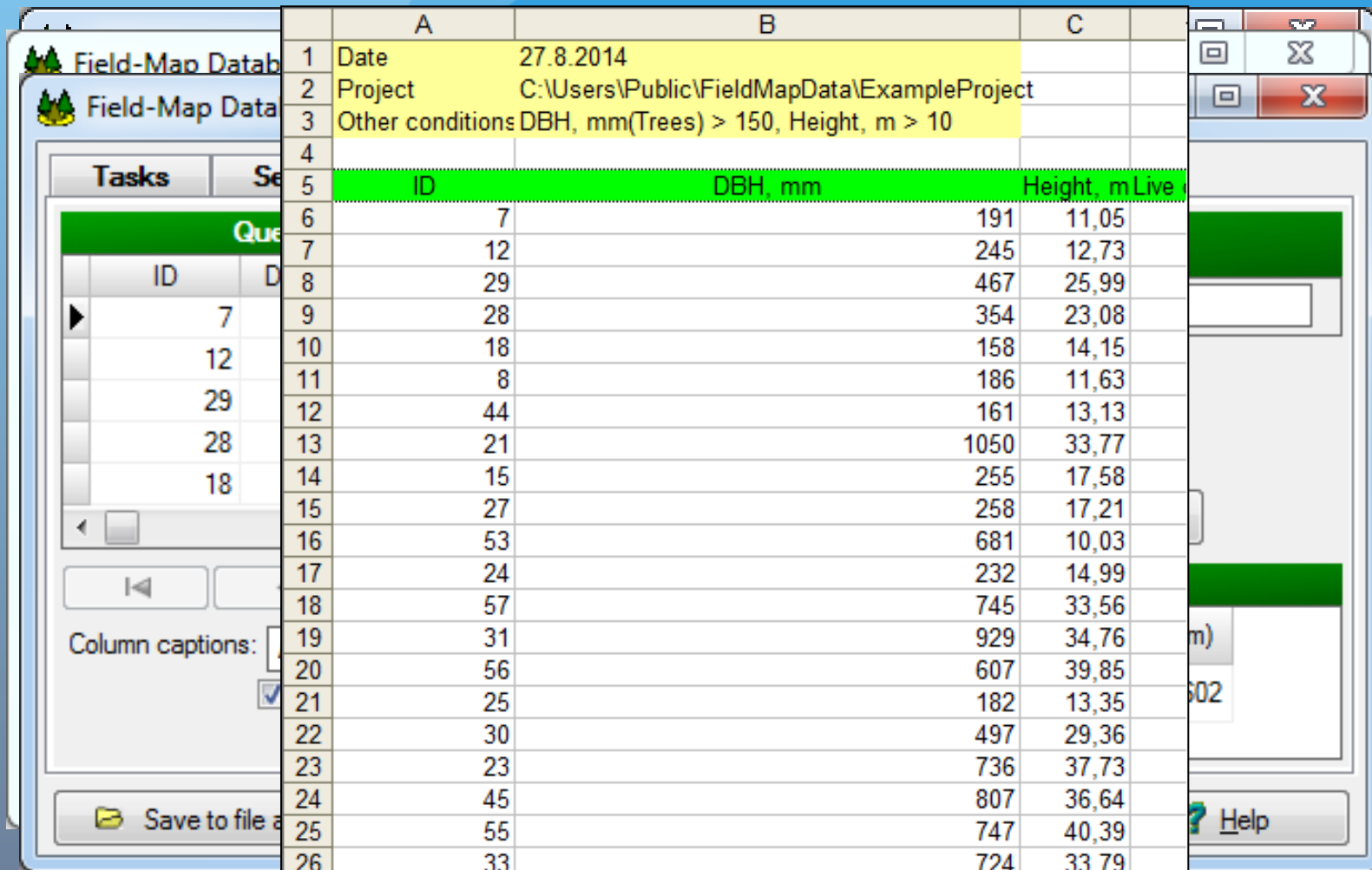
- Reads XML file with list of database records (obtained using new scripting functions)
- Click on the record → switch over Data Collector on respective table and entry
- Switch over different plots is supported



Database Query Tool

- Robust instrument to quickly filter database content and to perform simple statistical computations
- Implemented directly into Field-Map Data Collector

Based on selected attributes considered and condition definitions it automatically creates SQL query and provides results



The screenshot displays a software interface for field map data analysis. At the top, a window titled 'Field-Map Data' shows the following information:

- 1 Date: 27.8.2014
- 2 Project: C:\Users\Public\FieldMapData\ExampleProject
- 3 Other conditions: DBH, mm(Trees) > 150, Height, m > 10

Below this, a table displays the results of a query. The table has four columns: ID, DBH, mm, and Height, m Live. The data is as follows:

ID	DBH, mm	Height, m Live
7	191	11,05
12	245	12,73
29	467	25,99
28	354	23,08
18	158	14,15
	186	11,63
	161	13,13
	1050	33,77
	255	17,58
	258	17,21
	681	10,03
	232	14,99
	745	33,56
	929	34,76
	607	39,85
	182	13,35
	497	29,36
	736	37,73
	807	36,64
	747	40,39
	724	33,79

The interface also includes a 'Tasks' panel on the left with a 'Save to file' button and a 'Column captions' section. A 'Help' button is visible at the bottom right.

Tables overview

- Descending ordering
- Background color, row color, font color and font style

The screenshot shows the 'Field-Map Project Manager' interface. On the left, the 'Layers' panel displays a tree structure under 'VS (Výrobní středisko)' with 'Vyroba (Výroba - doklad)' expanded to show various 'TezCin' sub-layers. The main window is titled 'Field-Map Project Manager (Copyright © 1999-2014 IFER Ltd., version 14.1.5155)' and has a menu bar with 'Project', 'Layers', 'Tools', 'Extensions', 'Synchronization', 'Developer', 'Options', and 'Help'. Below the menu is a toolbar with icons for file operations and navigation. The 'Overview table' configuration window is open, showing the following settings:

- Attribute(s) in overview: ZjednoduseneCisloDokladu
- ID in overview
- Ordering attribute(s):
- Descending order
- Background color: [Color selection box] [Reset color]
- Attrib. defining row color: RGB
- Attrib. defining font color: RGB2
- Attrib. defining font style: [Font style selection box] (bold,italic,underline,strikeout)

At the bottom of the configuration window, there is a section titled 'Attributes defining unique value combination (unique index)'.

Tables overview

READY 101 (VS 1 Tomáš)

Číslo dokladu: /11/2014/0001
.../1/2014/0001
▶.../1/2014/0001

Ochodní případ: Těžební činnost pro LČR s Lesní správa: 101 - Město Albrechtice Datum ukončení:
SÚJ: 10106 - Město Albrechtice Revír: Drakov Číslo dokladu: 101/10106/101064/1/2014
Smlouva: 101016 - 2012-2017 Datum zápisu: 4.9.2014 Výběr: Všechno

Těžba a přibližování

Poznámka:
Editor Etáž: 10 Poznámka: Náklad na
Oddělení: 401 Předáno LČR: 4.9.2014 Nákup dříví od LČR, KČ: 3866,32 Náklad na prac.
Dílec: A .apáky - pořadí série: bez lapáků Služba těžby pro LČR, KČ: 334,80 Náklad na os

Těžba Přibližování Aktuální stav zásob Ostatní činnost

Výkon: 111 - Těžba Opavská lesní a.s. Technologie těžby: JMP Napočtený objem, m3: 2,48
Podvýkon: 13 - mýtní Vyrobený objem, m3: 2,48 Nákup dříví od LČR, KČ: 3866,3

Měsíc	Výroba	Nápočet	Zaevidová
▶09/2014	Ano	Ano	

Vyrobený objem těžby, m3: 2,48 Napočtený objem

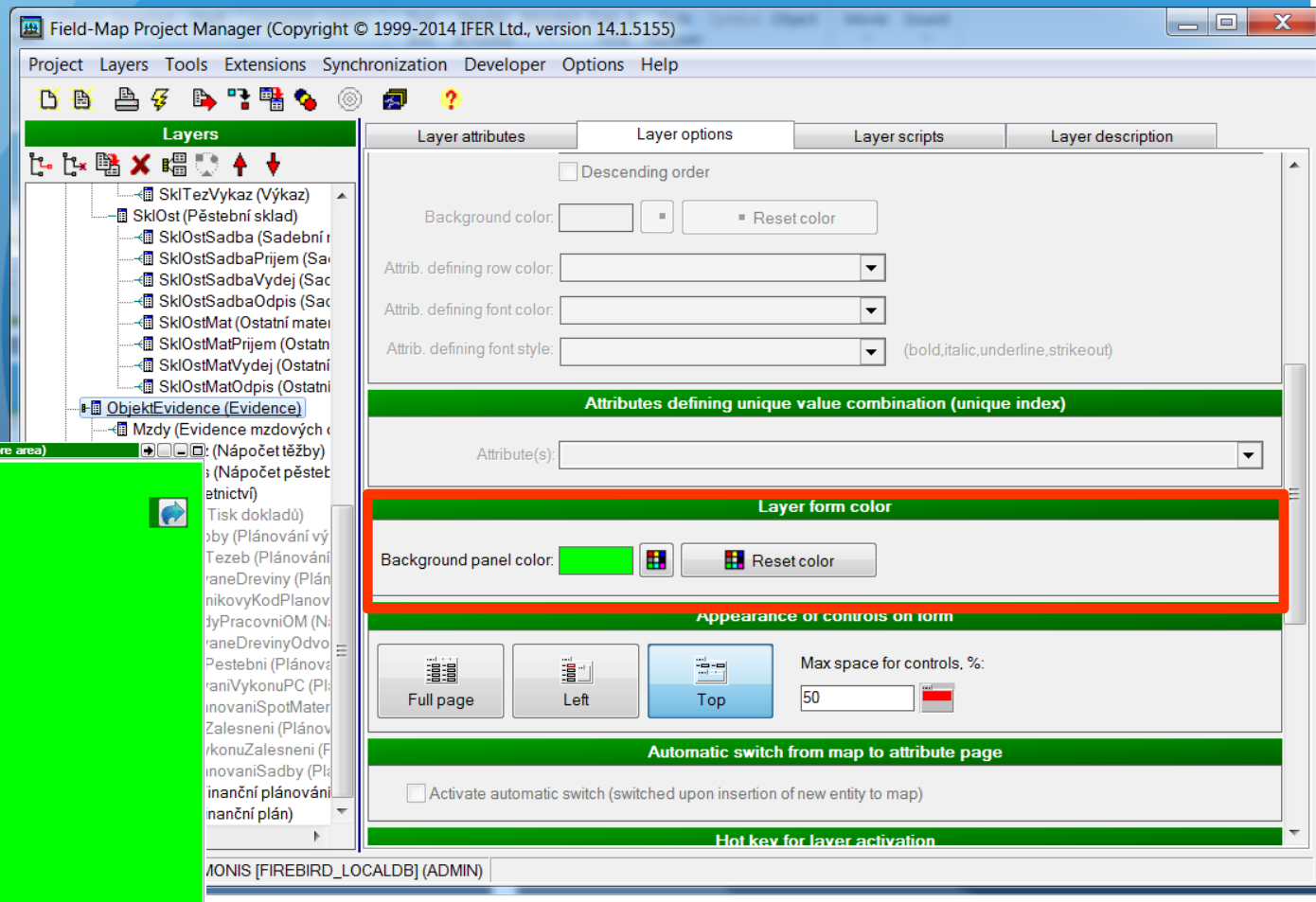
Sortimenty Pracovníci Dřeviny Skupiny dřevin

Sortiment: 100 | Jehličr
▶100 | Jehličnaté
Počet oddenků, ks: 5
Počet kusů: 6

Výrobní středisko Výroba - doklad Odvoz Sklady Evidence Účetnictví Finanční plánování

Color setting of table appearance

- Enlarging of user possibilities to set the color compositions of FMDC tables



Working with data layers

- Enable/Disable APPEND and DELETE of data layers

The screenshot displays the 'Field-Map Project Manager' interface. The main window is titled 'Field-Map Project Manager (Copyright © 1999-2014 IFER Ltd., version 14.1.5155)'. The menu bar includes 'Project', 'Layers', 'Tools', 'Extensions', 'Synchronization', 'Developer', 'Options', and 'Help'. The toolbar contains various icons for file operations and navigation.

The 'Layers' panel on the left shows a tree view with the following items: Plots (Plot), Trees, Deadwood, Stones, RegPoints (Reg. points), Transect, and Data.

The main window is divided into several sections:

- Layer attributes**: Includes a 'Layer label' text box.
- Layer options**: Contains a section titled 'Optional layer label' and a section titled 'Editing and mapping options'. The 'Editing and mapping options' section includes several checkboxes: 'Allow data editing' (checked), 'Enable APPEND button in navigator' (checked), 'Enable DELETE button in navigator' (checked), 'Allow mapping' (unchecked), 'Allow pen mapping' (unchecked), 'Allow multi-polygons' (checked), and 'Allow line mapping in polygon layer' (unchecked).
- Overview table**: Includes a dropdown for 'Attribute(s) in overview', a checked 'ID in overview' checkbox, a dropdown for 'Ordering attribute(s)', a 'Descending order' checkbox, a 'Background color' selector, and dropdowns for 'Attrib. defining row color' and 'Attrib. defining font color'. A font style dropdown is also present with options like bold, italic, underline, and strikethrough.

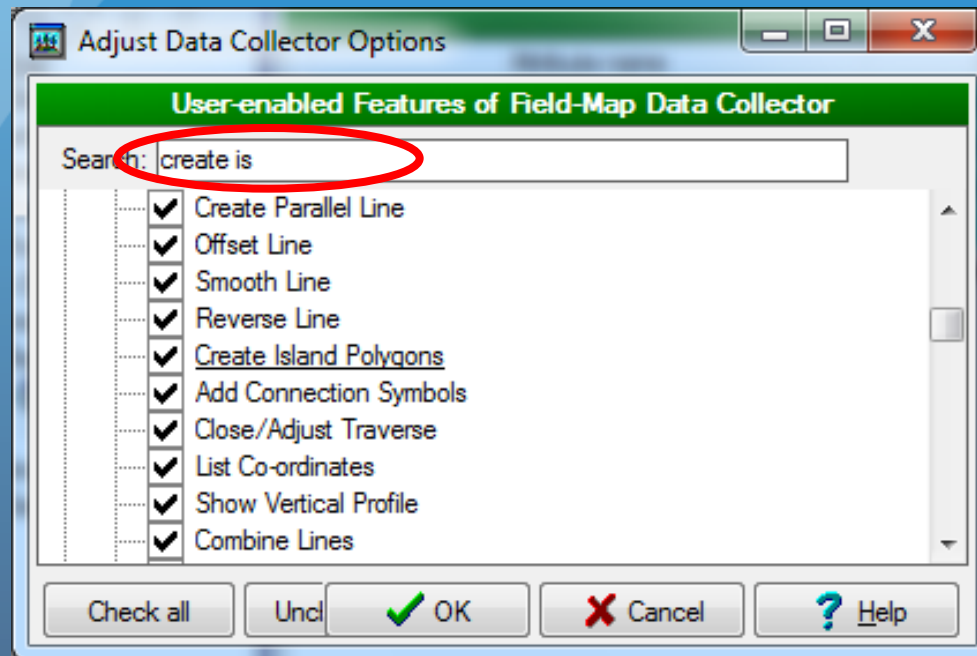
Two red arrows originate from the 'Enable APPEND button in navigator' and 'Enable DELETE button in navigator' checkboxes. They point to the '+' and '-' buttons in the bottom toolbar of the application, respectively.

On the right side, a smaller window titled '1 (test)' is visible, showing a data table with several rows. The second row from the bottom is highlighted in cyan.

The status bar at the bottom of the application shows the project path: 'Project D:\Data\Field-Map\FMExampleProjects\ExampleProject [PARADOX] (ADMIN)'. The bottom-most bar contains several tabs: 'Výrobní středisko', 'Výroba - doklad', 'Odvoz', 'Składy', 'Evidence', 'Účetnictví', and 'Finanční plánování'.

Adjusting Data Collector

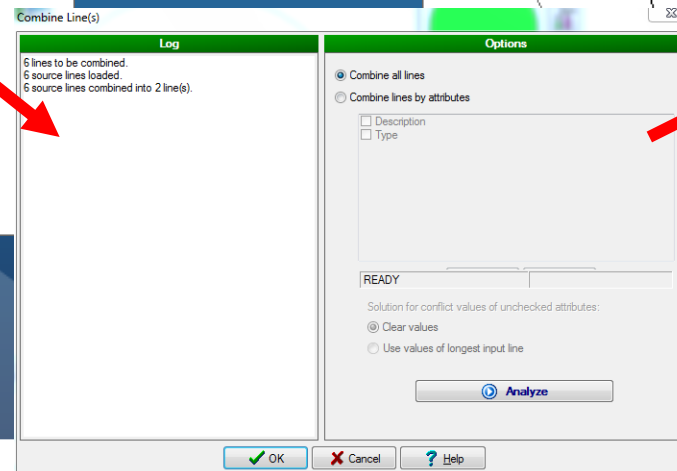
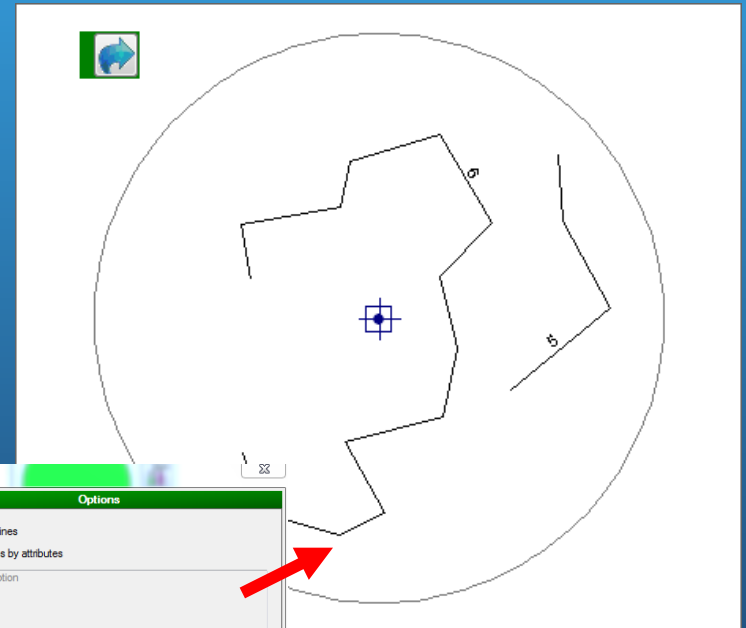
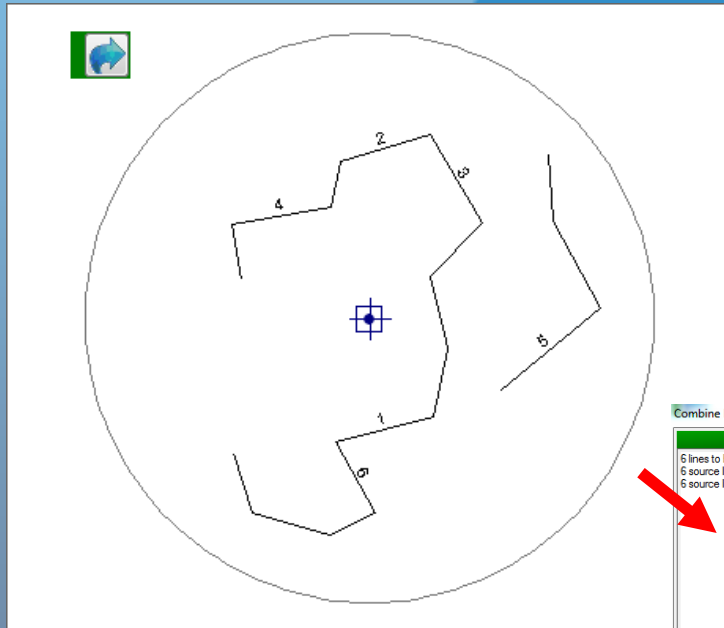
- Direct searching in Adjust Data Collector Options



- Searching fields added also on another places (e.g., Script editor)

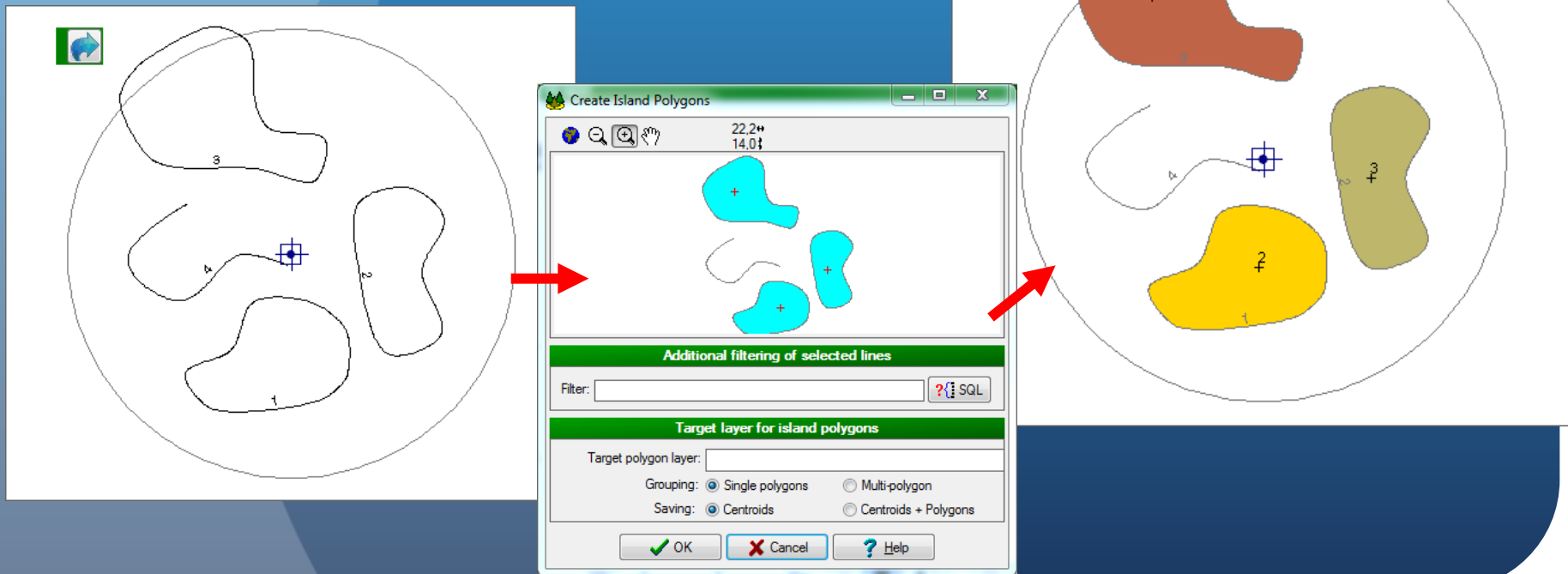
Working with lines

- Combine (merge) all lines in layer or based on specific rule



Working with lines

- Create Island Polygons – quick polygonization (even Multi) based on closed source lines



Other improvements ...

- Implementation of alphanumeric lookup lists with user defined width of ID
- New attribute type - GUID and Lookup list GUID
- Optional save meta-data (project definition) to tables
- Copy of points to Ref.points layer
- Deleting of lines after polygonization limited to selected plot
- *And many others ...*

New scripting functions

New general groups of functions and procedures

- **Flashing** {FlashPoint; FlashLine; FlashPolygon; ...}
- **XMLOutput** {WriteComment; AddTableData; ...}
- **Topology** {PointInPolygon; CombinePolygons; ...}

New scripting functions

- RefreshAttributeLayout
 - Now; Date
 - Color2RGB
 - GetLookupListAttributeValue
 - InputFromListWithStartingValue
 - ScreenMilimeters2MapDistance_m
 - SetSeparators; ResetSeparators

 - and many others
- + updated help documentation (almost 120 new functions described and example scripts added)

Few examples in detail ...

- Layer.**DefaultValue**[AttribName: string]: variant
 - sets/gets the default value of specific attribute
- **GetRecordCount**(Where:string): integer
 - returns the number of records based on ID of plots (Where)
- **DateToString** (Date: variant): string; **DateTimeToString** (DateTime: variant): string
 - converts variant expression of Date/Date and Time into string
- **GetLookupListValue** (AttrName: string; AttrValue: variant): string
 - returns Value1 from lookup list

Thank you for your attention

