# New Features of Field-Map
## Version (X4) X5
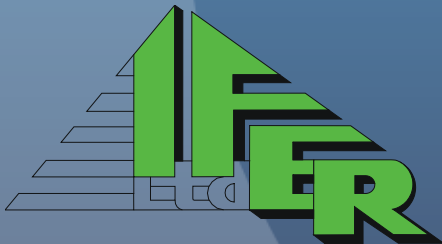
IFER – Monitoring and Mapping Solutions Ltd.
http://www.field-map.com

# 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

- <u>Default database in Field-Map since the version X4</u>

- 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 |
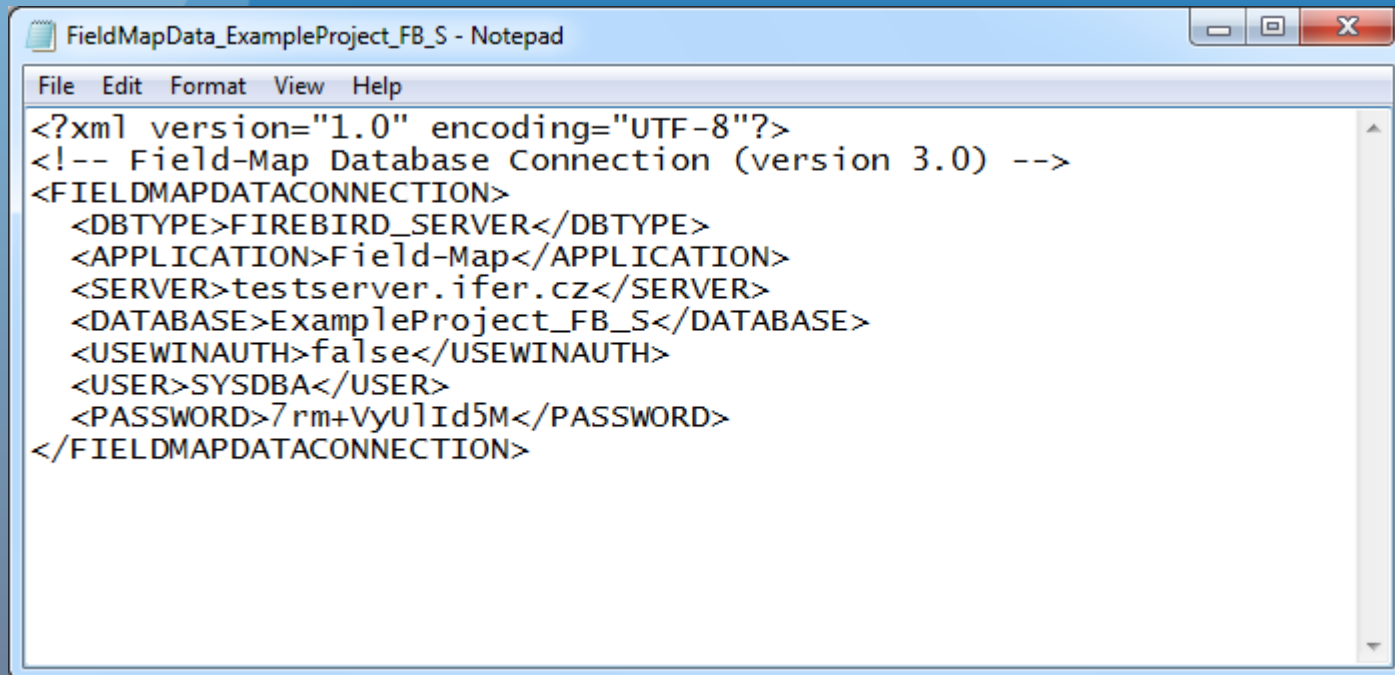
# MSSQL Local

- <u>Advantages</u>
  - 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+VyUlId5M</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 usefull 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

Server

Field team 1          Field team 2          Field team 3
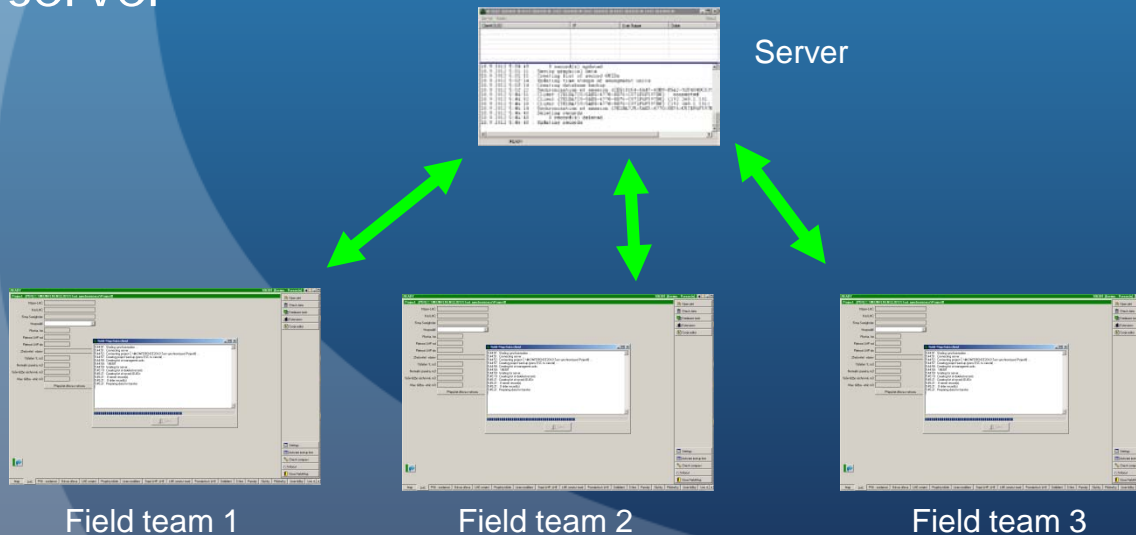
# Data synchronization

- 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
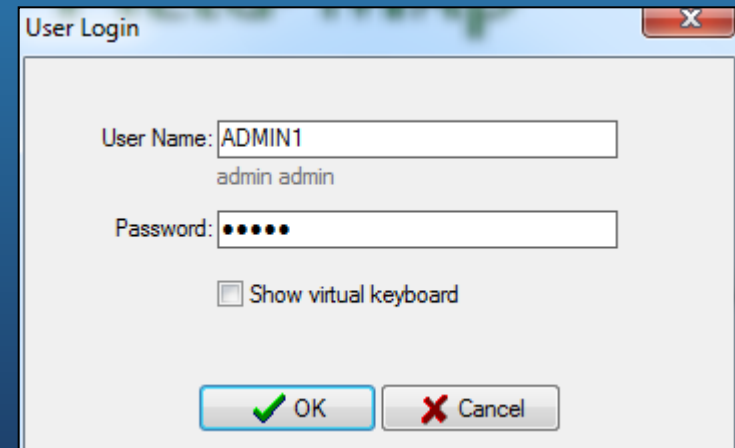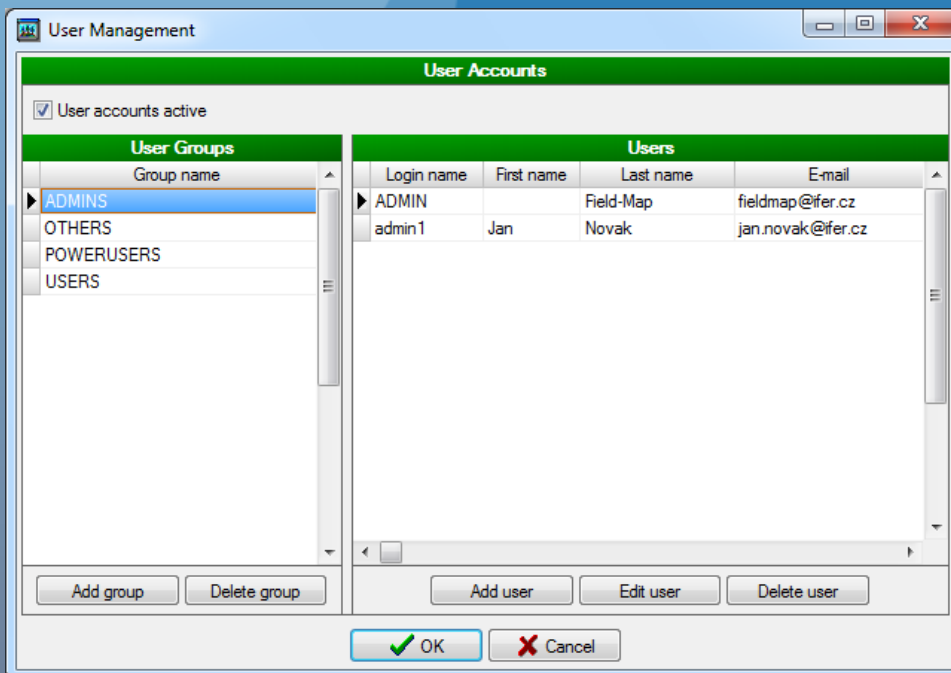
# User Accounts

- 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 | 🟩 | 🟥 | 🟥 | 🟥 |
| Management of Synchro Journal | 🟩 | 🟩 | 🟥 | 🟥 |
| Uploading of data collected in the field to server | 🟩 | 🟩 | 🟩 | 🟩 |
| Sending messages via synchronization | 🟩 | 🟩 | 🟩 | 🟩 |
| Changing own password | 🟩 | 🟩 | 🟩 | 🟩 |

# WMS servers

- Great source of background maps
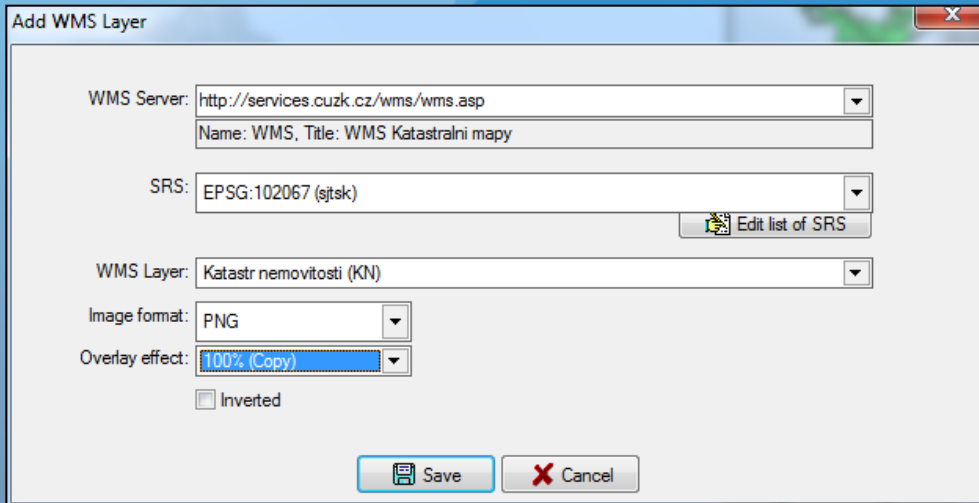
- Field-Map supports opening WMS maps from all free WMS servers
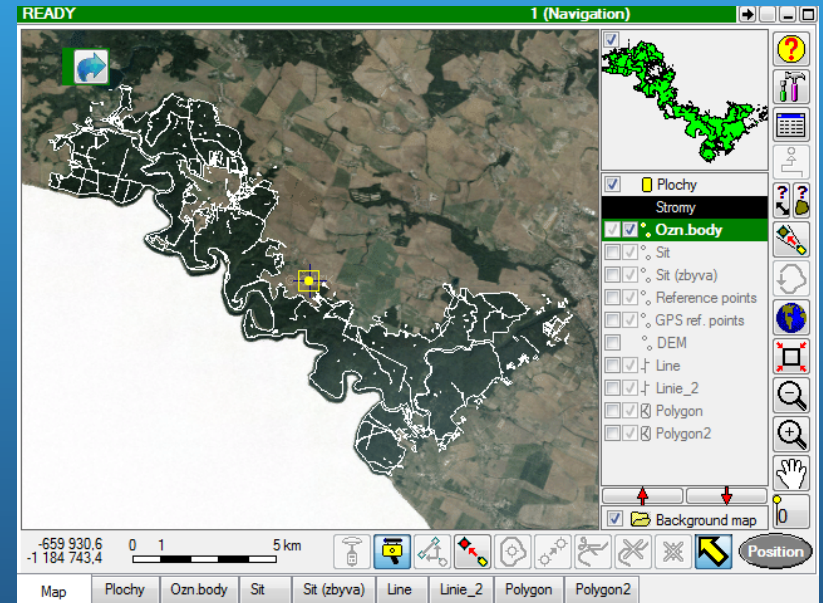


- Store WMS connection to a XML file and share it with other colleagues or projects

# WMS servers

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



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)
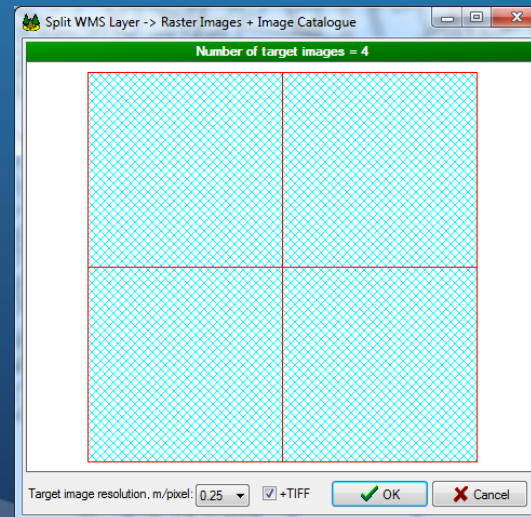
# WMS servers

There's no problem for Data Collector to briefly visualize maps ...

... with high spatial resolution ...
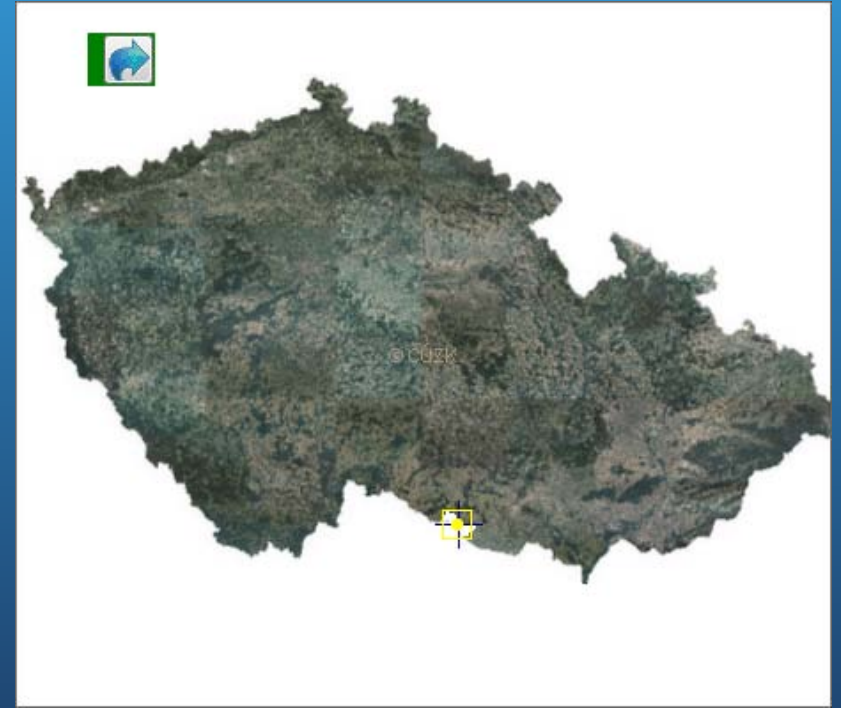
... or covering large areas.

# Navigator

- Tool which substantially increases the spead of searching of database records/errors

- Implemented into FM Data Collector
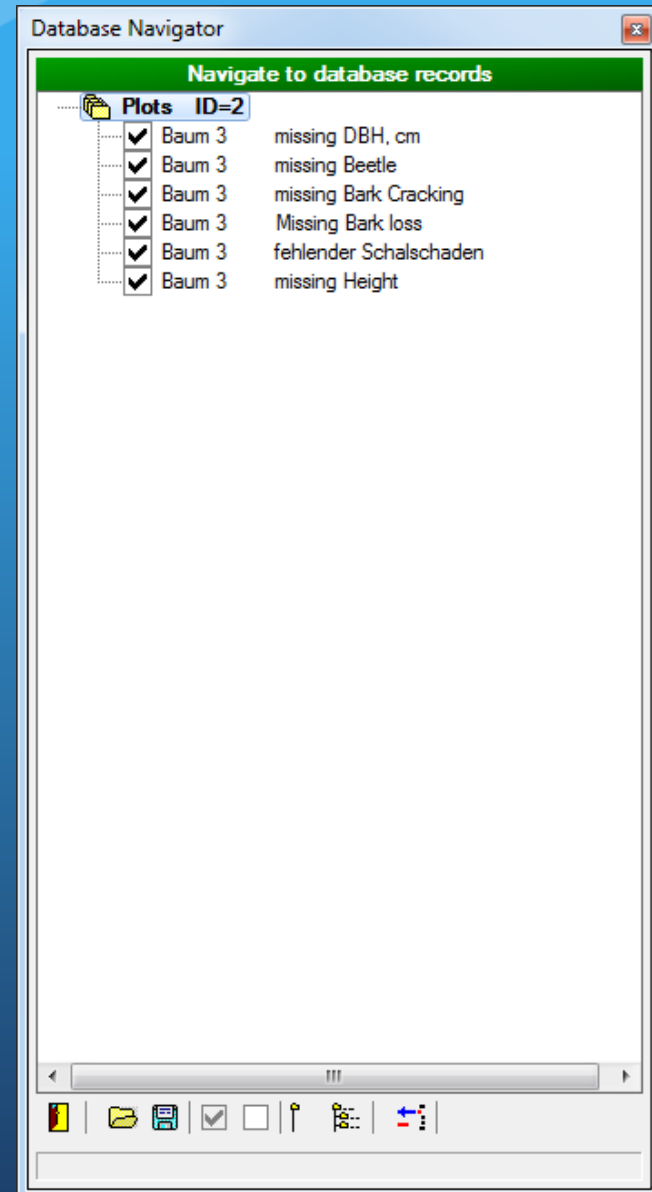
# Navigator
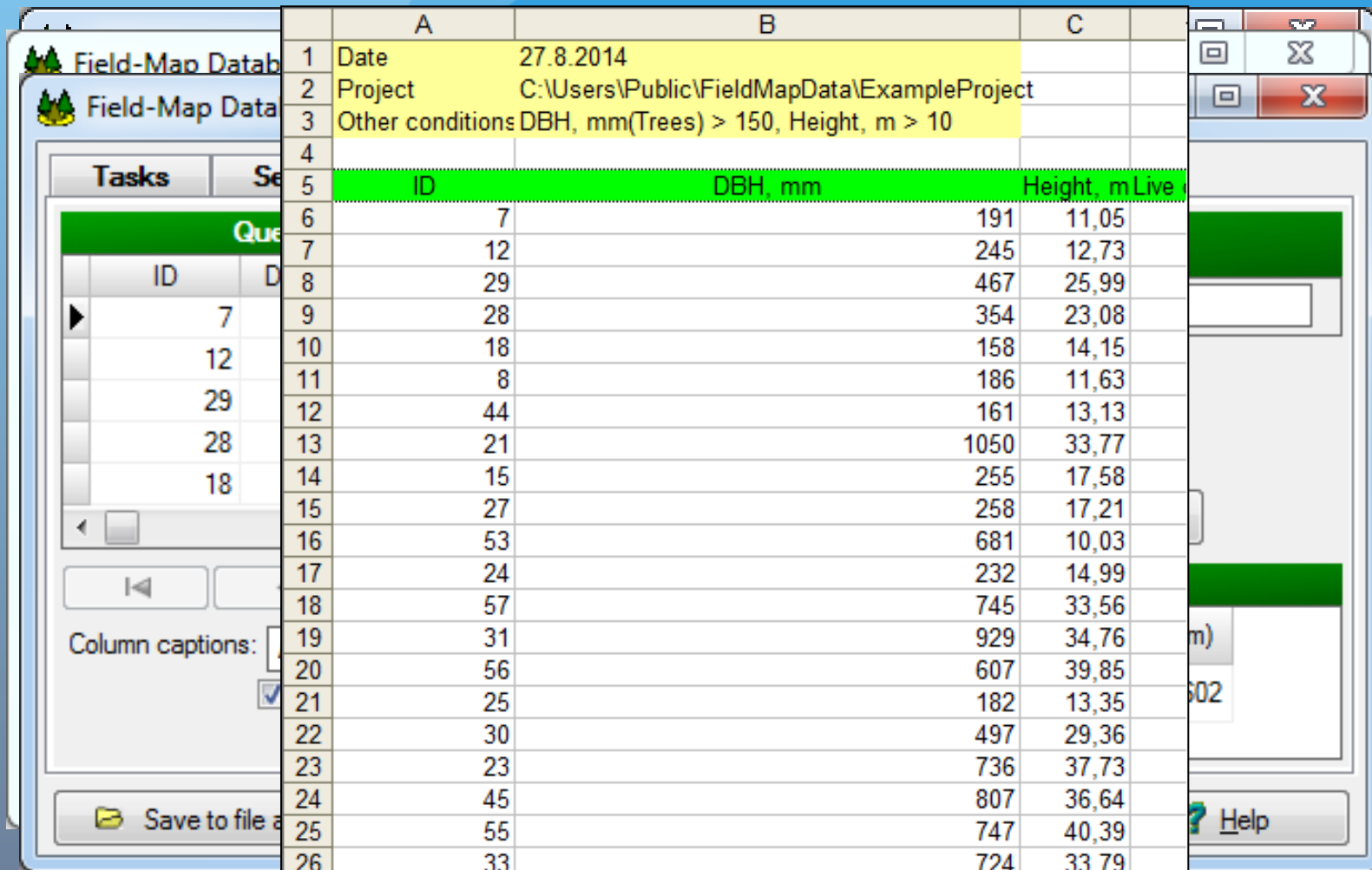
- Reads XML file with list of database records (obtained using new scripting functions)

- Click on the record → switch over Data Collector on respective table and entry



- Switch over different plots is supported
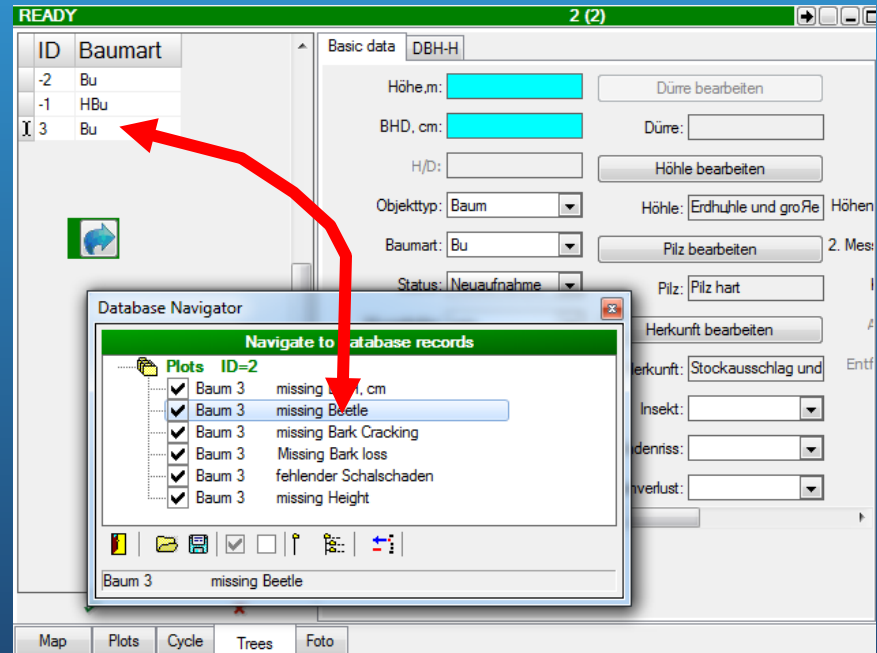
# Database Query Tool

- 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

# Tables overview

- Descending ordering

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

# Tables overview

# Color setting of table appearance

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

# Copy Layer List to Clipboard

- New tool especially usefull when layer tree of eccessive project should be quickly captured and copied

- Hierarchical structure of project is structured using Tabs – easy to import to spreadsheets
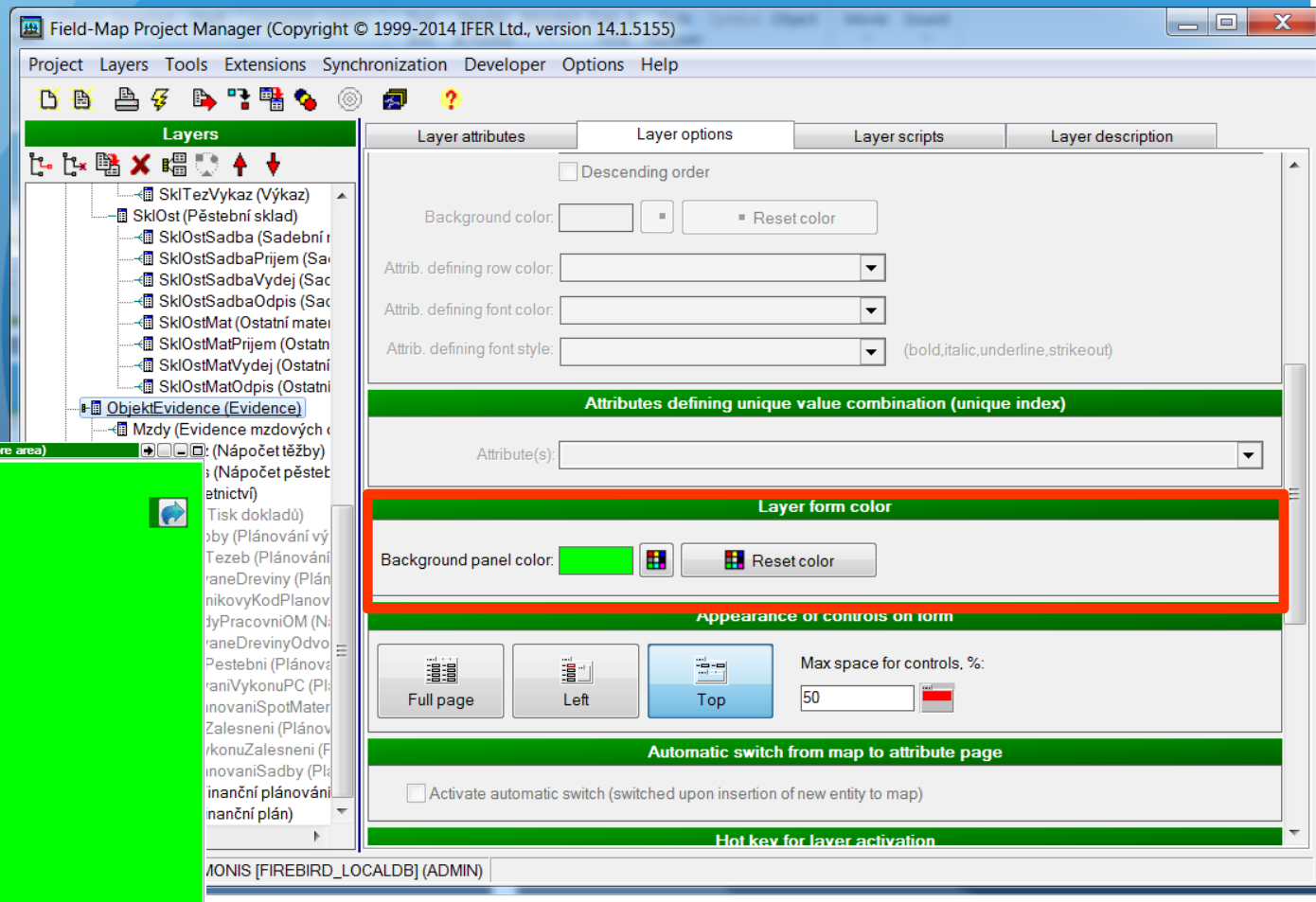
# Working with data layers

- Enable/Disable APPEND and DELETE of data layers

# Adjusting Data Collector

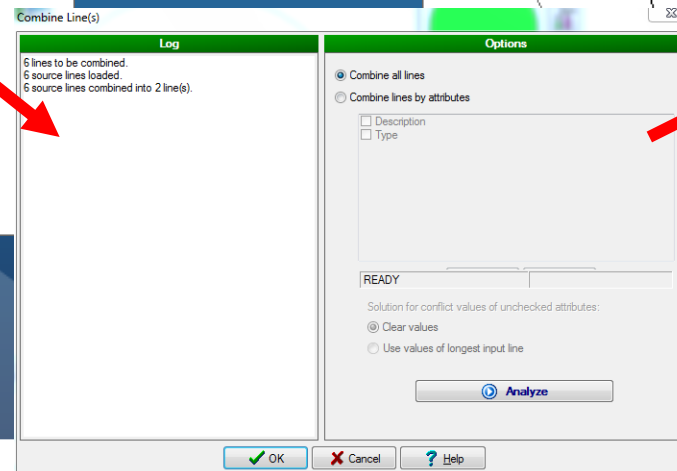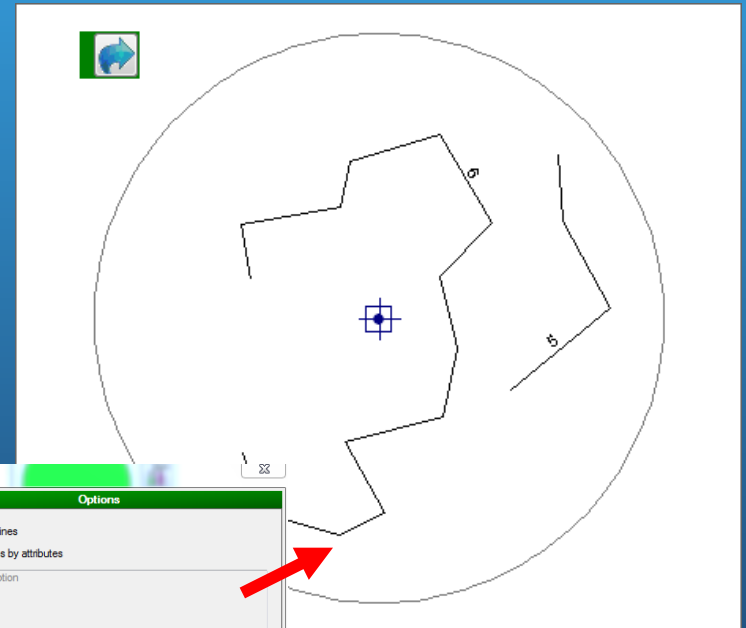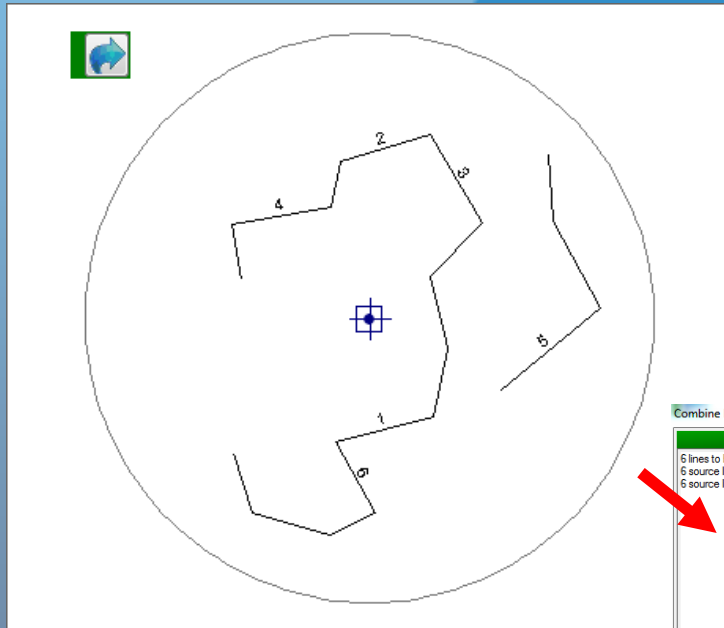- Direct searching in Adjust Data Collector Options
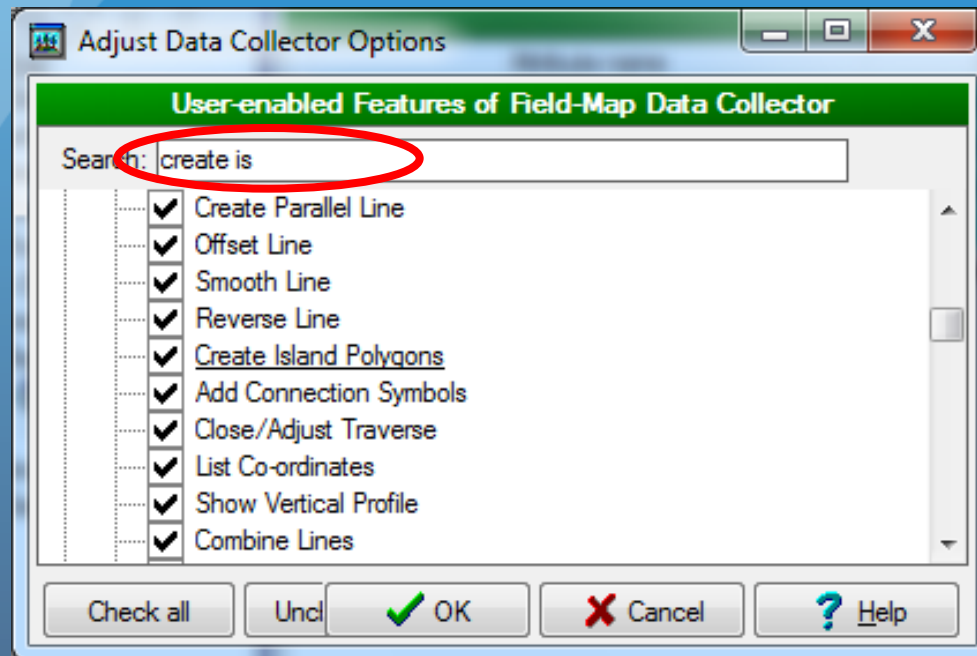


- Searching fields added also on another places (e.g., Script editor)

# 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
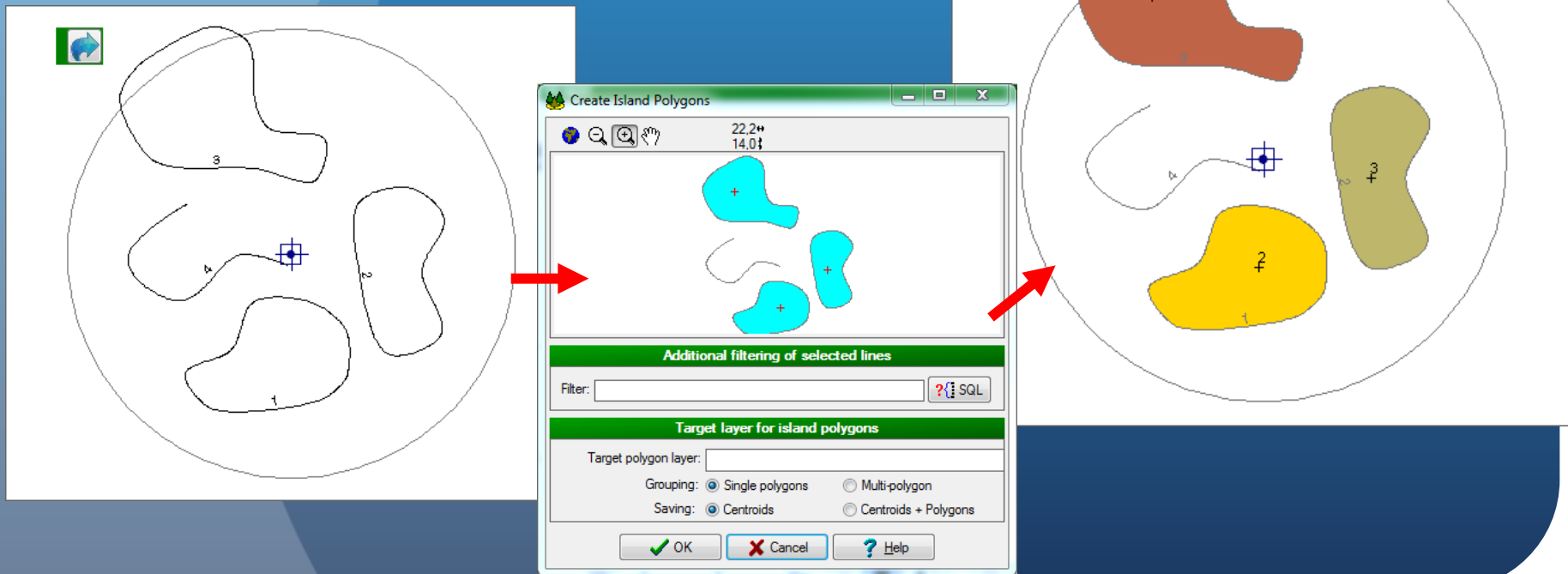
# Other improvements …

- Implementation of alphanumeric lookup lists with user defined width of ID

- New attribute type – GUID and Lookup list GUID

- Optional save mata-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