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IGN
INSTITUT NATIONAL DE L'INFORMATION GÉOGRAPHIQUE ET FORESTIÈRE

CHANGER D'ÉCHELLE

Managing life-cycle information: from IGN France's BDUni to the OME2 project

Noémie Grémeaux (IGN-France)

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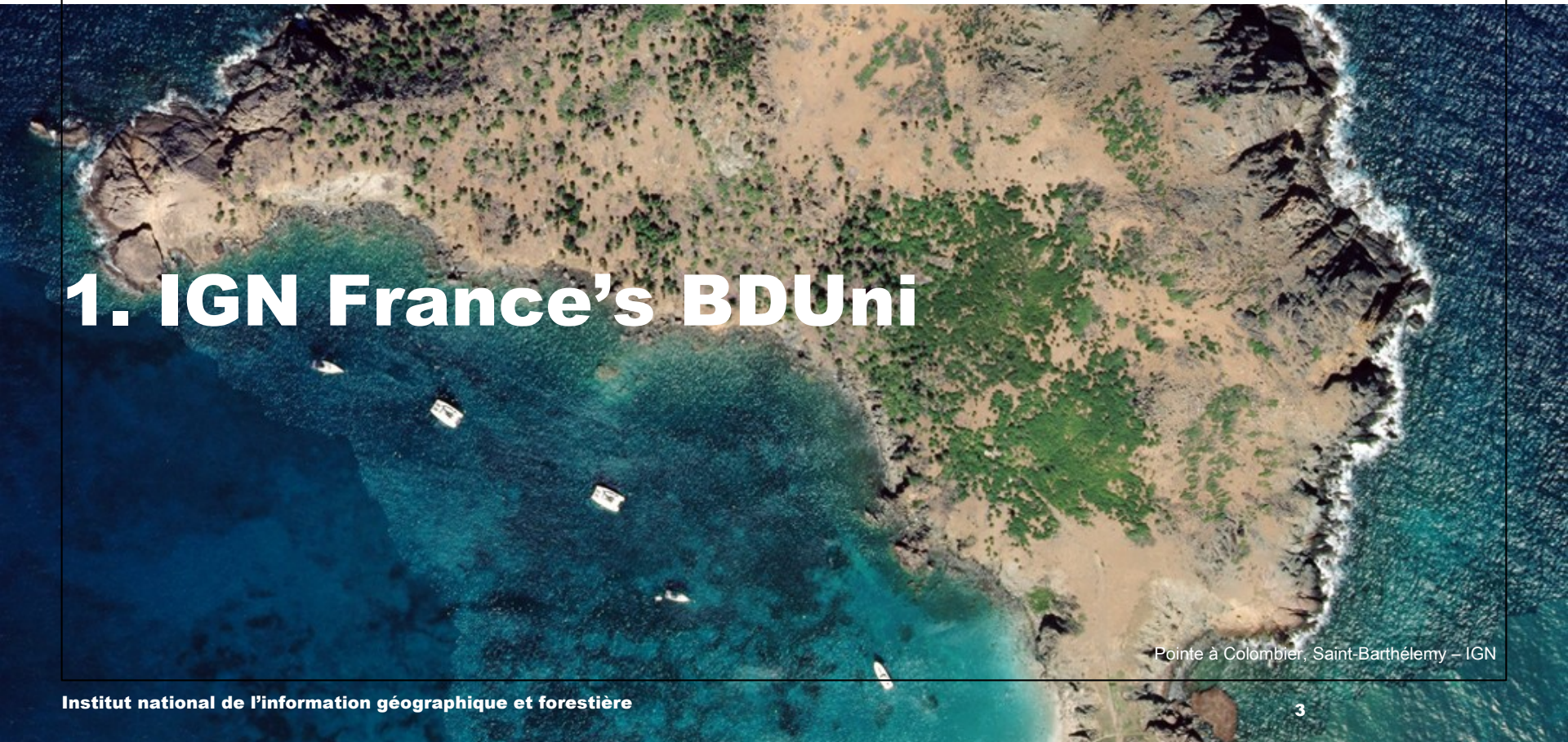
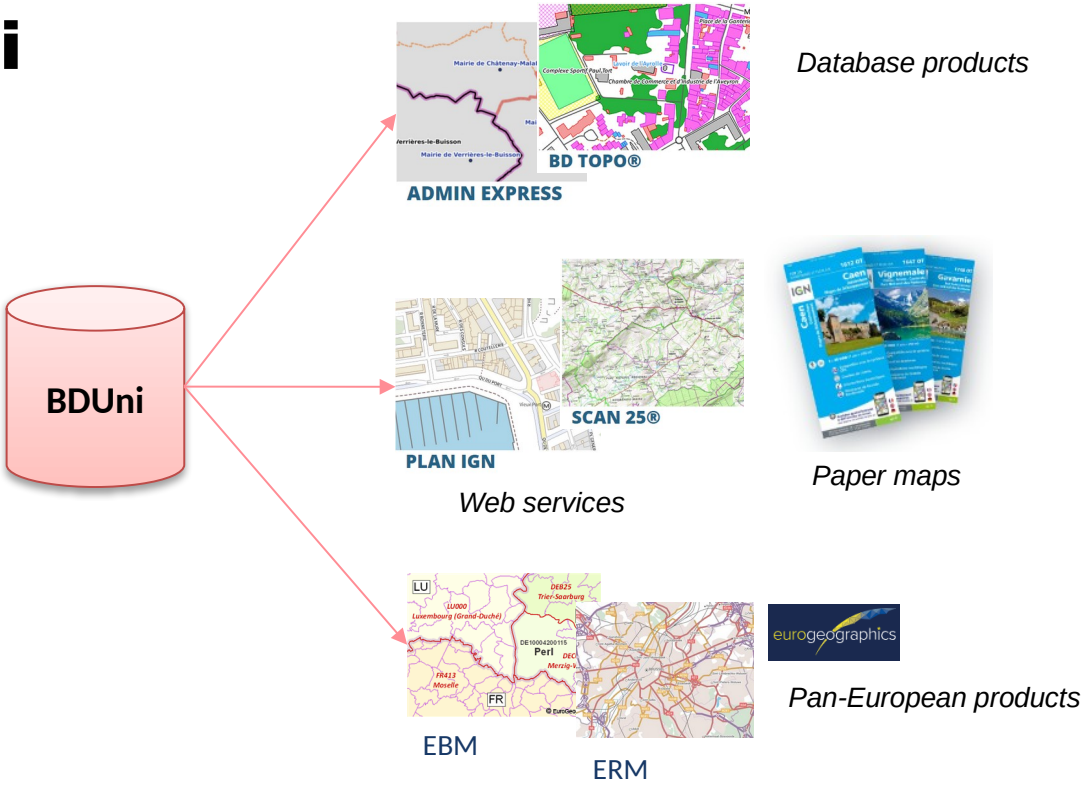
1. IGN France's BDUni



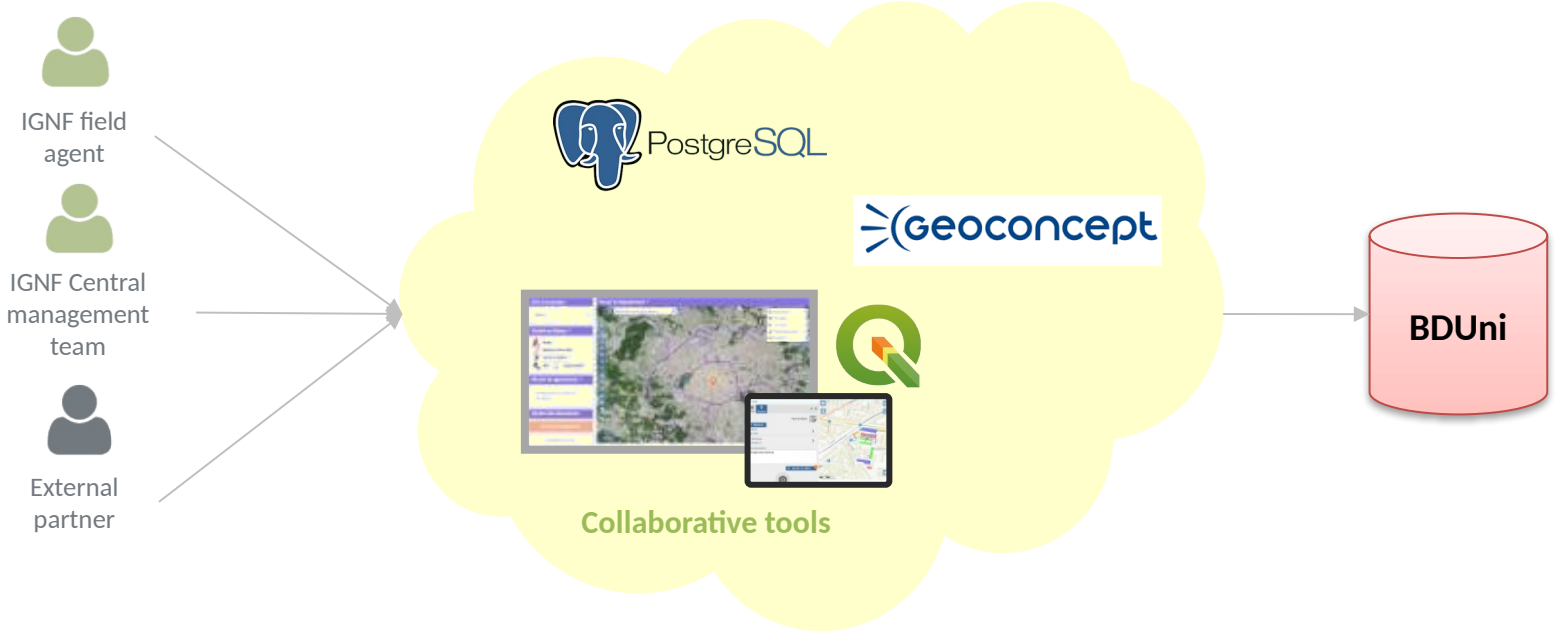
Pointe à Colombier, Saint-Barthélemy – IGN

IGN France's BDUni

- IGN France's central production database
- Created in 2006
- 1:10k multi-theme vector data
  - Buildings
  - Administrative
  - Hydrography
  - Land cover
  - Named places
  - Transport
  - …
- 200 tables and 1800 fields
- ~180 million live objects and 450 million historical objects
- 690 Go
- PostgreSQL/PostGIS

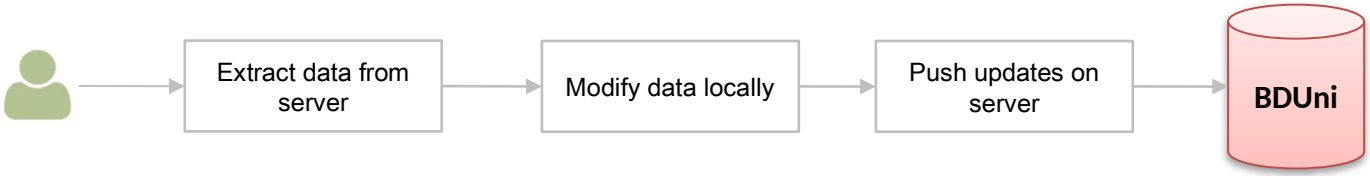


Updating the BDUni



The BDUni management system

Workflow



→ Many users are working on the BDUni at the same time so conflicts can occur.

→ It is essential to track changes and know who has been doing what.

Main purposes of the BDUni management system:

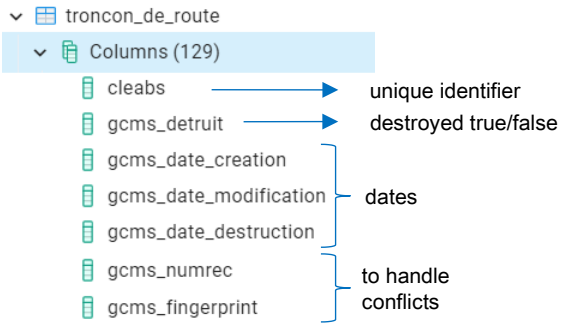
- Keep track of all changes performed on the data through the different tools.
- Record every version of every object in the database, in order to visualize evolutions and provide incremental updates.
- Manage updates from the different tools and handle conflicts.

2. The BDUni management system

Grand récif du nord-est, Mayotte – IGN

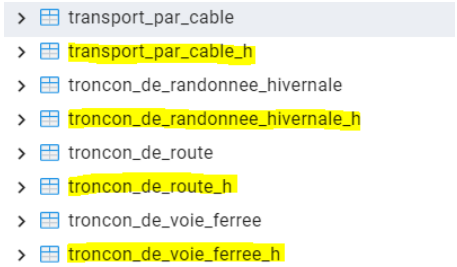
Implementation

7 technical fields on all tables



A history table for each table

To store all the successive versions of every object



PostgreSQL triggers

To fill the required information in case of modifications:

- UID updating rules (cleabs)
- Technical fields (dates, destroyed…)
- History tables.

History table example

Main table

	cleabs [PK] character varying (24)	gcms_detruit boolean	gcms_date_creation timestamp without time zone	gcms_date_modification timestamp without time zone	gcms_date_destruction timestamp without time zone
1	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2023-08-26 08:48:30.650131	[null]

Current version of the object

History table

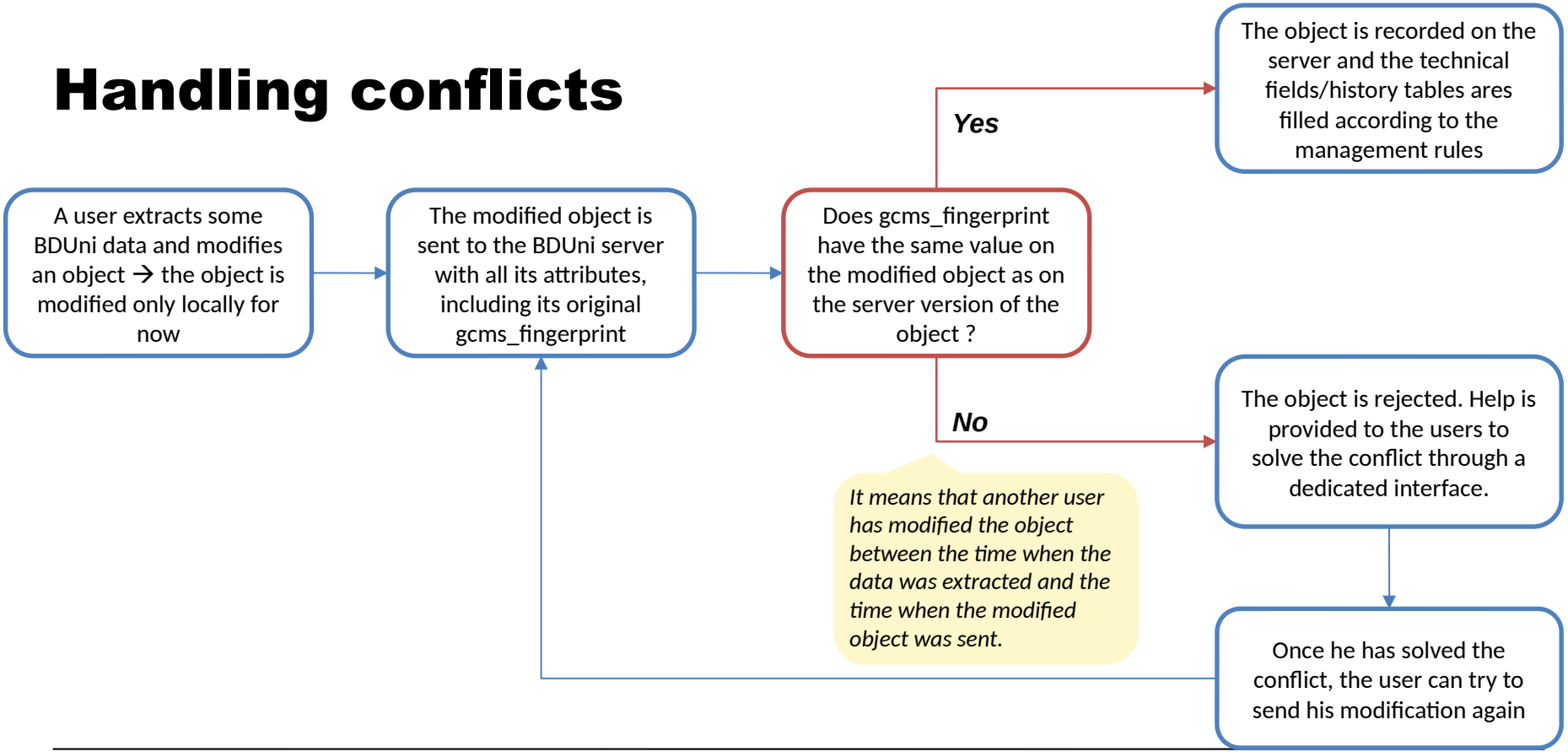
	cleabs character varying (24)	gcms_detruit boolean	gcms_date_creation timestamp without time zone	gcms_date_modification timestamp without time zone	gcms_date_destruction timestamp without time zone
1	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	[null]	[null]
2	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2010-10-13 13:53:46.081155	[null]
3	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2011-09-07 10:52:27.309352	[null]
4	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2014-06-24 12:50:44.818685	[null]
5	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2018-01-15 12:07:10.193572	[null]
6	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2022-12-12 11:59:04.522109	[null]
7	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2022-12-12 13:40:32.029612	[null]
8	TRONROUT0000000013612462	false	2006-08-18 12:13:50.587418	2022-12-12 13:52:43.464953	[null]

Former versions of the object

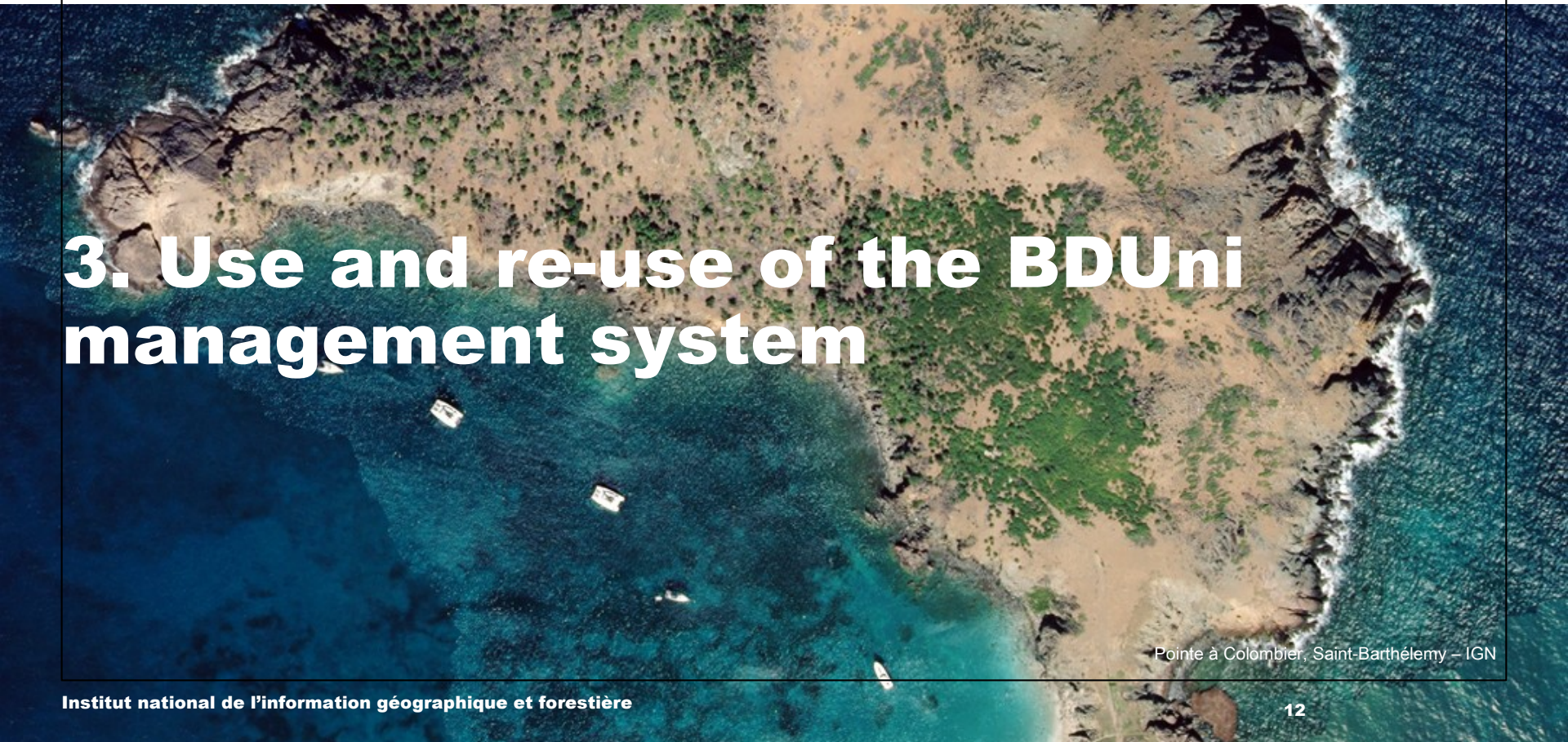
Management rules

	Main table	History table
Object created	➢ New entry ➢ Fill creation date ➢ Generate fingerprint	-
Object modified	➢ Fill modification date ➢ Update fingerprint	➢ Record former version
Object deleted	➢ Set « destroyed » field to true ➢ Fille deletion date ➢ Update fingerprint	➢ Record former version

Handling conflicts



3. Use and re-use of the BDUni management system

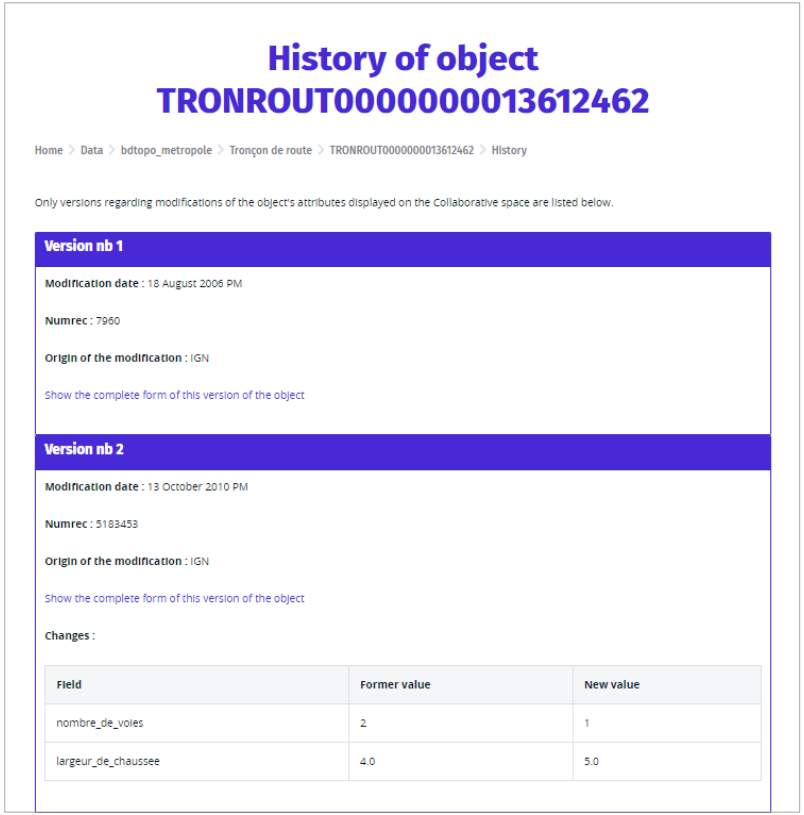


Pointe à Colombier, Saint-Barthélemy – IGN

Accessing historical information

On the « Collaborative space » website* (https://espacecollaboratif.ign.fr)

Ex:
https://espacecollaboratif.ign.fr/gcms/database/bdtopo_metropole/feature-type/troncon_de_route/feature/TRONROUT0000000013612462/versions



History of object
TRONROUT0000000013612462

Home > Data > bdtopo_metropole > Tronçon de route > TRONROUT0000000013612462 > History

Only versions regarding modifications of the object's attributes displayed on the Collaborative space are listed below.

Version nb 1

Modification date : 18 August 2006 PM

Numrec : 7960

Origin of the modification : IGN

Show the complete form of this version of the object

Version nb 2

Modification date : 13 October 2010 PM

Numrec : 5183453

Origin of the modification : IGN

Show the complete form of this version of the object

Changes :

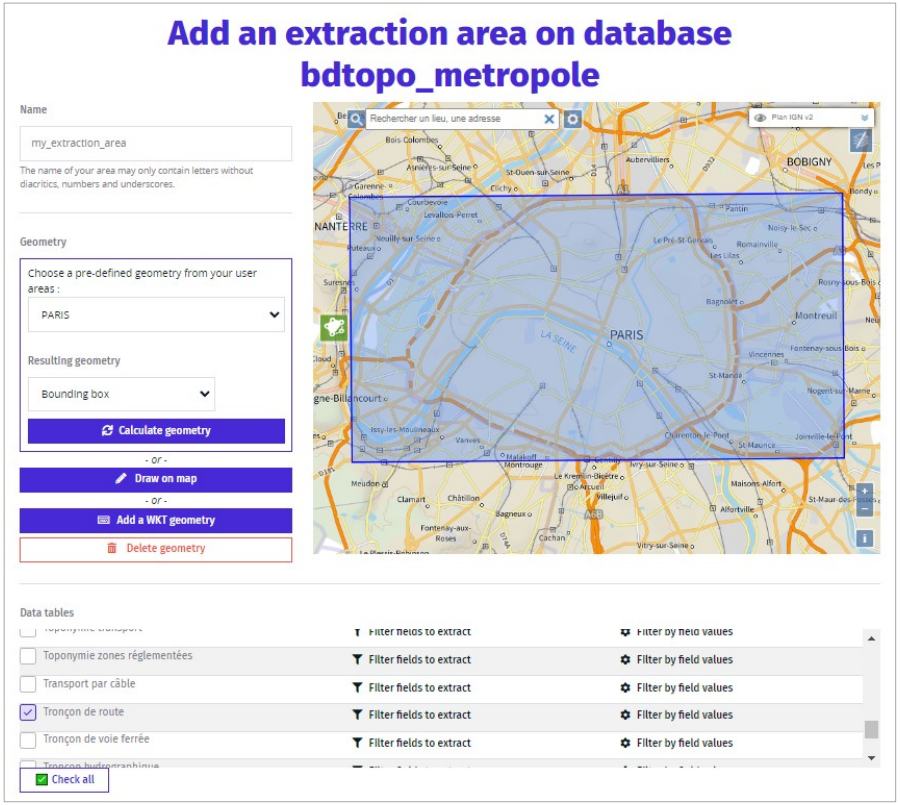
Field	Former value	New value
nombre_de_voies	2	1
largeur_de_chaussee	4.0	5.0

* *For registered users only*

Delivering incremental updates

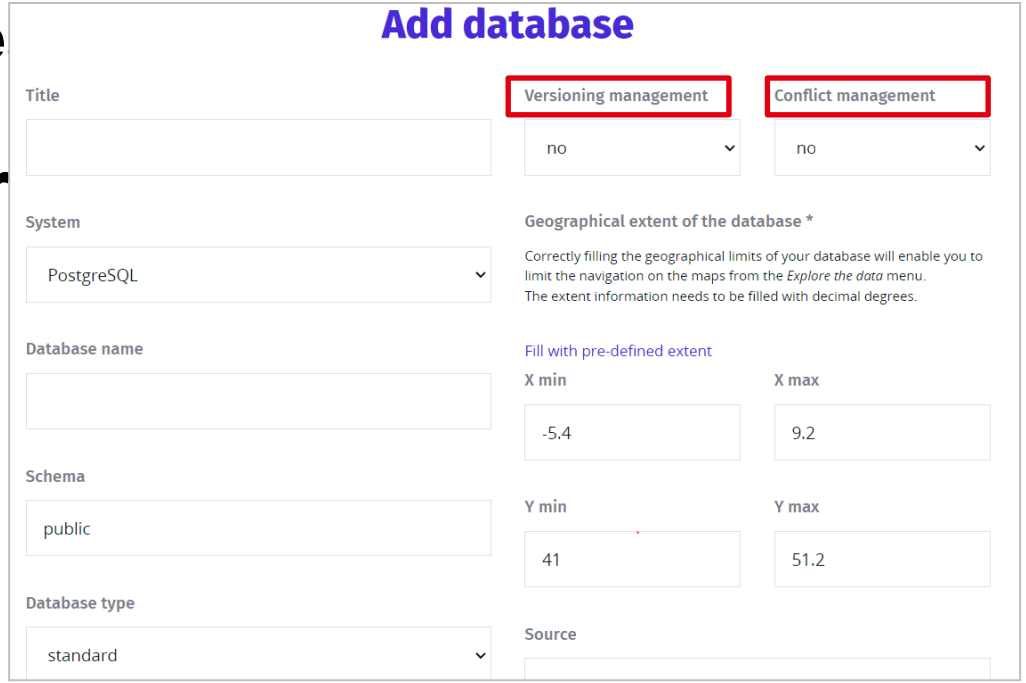
- A change-only updates edition of the BDUni is available every trimester.

- On the « Collaborative space » website, registered users can download change-only updates on request.



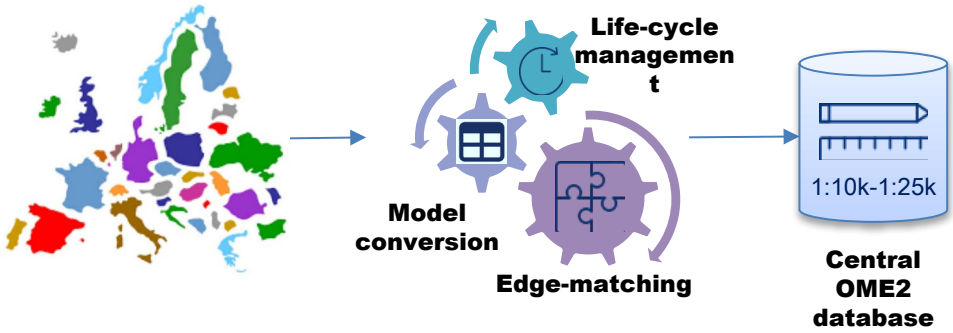
Setting up database with life-cycle management for our partners

- Two simple parameters on the Collaborative space
- Automatic creation of technical fields and triggers



Open Maps for Europe 2

- Consortium led by EuroGeographics
  - IGN France
  - Kadaster Netherlands
  - NGI Belgium
  - Hellenic Cadastre
  - Spanish Cadastre
  - IDOX
  - BKG
- Co-funded by the European Commission
- To create a **production process** for:
  - An **open large-scale** database
  - Containing **key themes**: Administrative units, Transport network, Hydrography
  - With **authoritative**, **harmonised** and **edge-matched** data
  - Including **life-cycle** management (INSPIRE compliant).



Co-funded by the European Union
Digital Europe Programme
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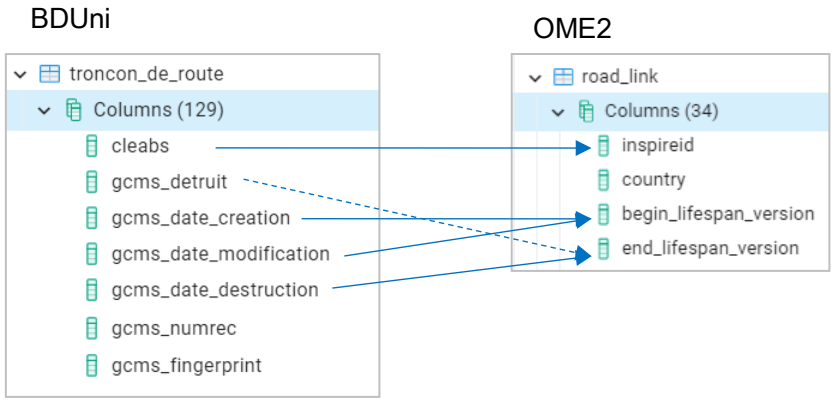
Capitalizing on the BDUni experience

- Similar concepts: unique identifier and life-cycle attributes
- The same principles are being implemented in the OME2 database:
  - History tables
  - Re-use of the BDUni triggers to fill the life-cycle information.

→ A functional life-cycle management system with very little additional implementation.



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Thank you for your attention

Contact: noemie.gremeaux@ign.fr