

Central Terminology Server for MII & NUM: Actual state in 2024

Workshop, 10. July 2024

(<https://mii-termserv.de/blogs/2024-06-27-workshop/>)

Prof. Dr. Josef Ingenerf

University Lübeck (UzL)

University Hospital Schleswig-Holstein (UKSH), Campus Lübeck

Head of Modul 2b-project „SU-TermServ“

Head of GMDS-Working Group „Medical Terminologies and Classifications“

Program

Workshop “Central Terminology Server for MII & NUM: Actual state in 2024” Wednesday, 10. July 2024, 10:00 AM-13:00 PM	
Session 1:	Introduction, <u>SPEAKER</u>: Josef Ingenerf
10:00-10:15	Service Unit Terminological Services (SU-TermServ)
	FHIR terminology resources and services
Session 2:	Introduction to Ontoserver, <u>SPEAKER</u>: Muhammad Adnan
10:15-10:45	Ontoserver implementation in Cologne and its use
	Ontoserver Syndication Mechanisms
Session 3:	Onboarding for accessing the central Ontoserver: <u>SPEAKER</u>: Rene Tielsch-Nebel, Muhammad Adnan
10:45-11:15	Requirements, procedure, existing documentation
Session 4:	Restructuring, <u>SPEAKER</u>: Joshua Wiedekopf, Bettina Uliczka
11:15-11:45	Preparation of terminological resources from KDS 2.0
11:45-12:00	Offline provision of terminologies via DSF framework
Session 5:	Q&A Session
12:00-13:00	Open discussion

Module 2b project „SU-TermServ“

Small project with partners from Cologne, Hannover and Lübeck,
see <https://mii-termserve.de/>.

Cologne



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PROF. DR.



Oya Deniz Beyan
PROF. DR.



Ana Grönke
DR.



Muhammad Adnan
M. SC.



Samer Alkarkoukly
M.D. M.SC.



Mostafa Kamal
M. SC.



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DIPL. ING. (FH)



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DR.

Lübeck



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Joshua Wiedekopf
M. SC.



Tessa Ohlsen
M.SC.

Hanover



Michael Marschollek
PROF. DR. MED. DR.-ING.



Birger Haarbrandt
M. SC.



Sarah Ballout
B. SC.

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- Provision of terminological content and services by using the central Ontoserver in Cologne as the “source of truth” for MII & NUM.
- Support for partners like DIC (*online and offline provision*), FDPG project (generating the *search ontology*), ...

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Collaboration:

- Taskforce „Terminological Services“ as part of MII-WG „Interoperability“,
- Regular meetings of all Modul 2b projects (coordinated by the TMF)
- BfArM, GMDS WG MTK, etc.

Others, e.g. “Terminology-Server-Challenge” in Sept. 2023, GMDS Heilbronn

Data models with bindings to terminologies

(Core data sets like KDS, GECCO, MIO, ISIK, ...)

FHIR-Packages on Simplifier:

A variety of FHIR-Profiles references
numerous **ValueSets with codes**
from **CodeSystems** for:

KDS 2.0, e.g. MII - Basismodul Labor (2024), „lab test“

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id	S Σ 0..1	string
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- Analysis of integrated data
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Terminological IT-Services?

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FHIR Terminology Module: Resources

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CodeSystem

Terminologie/Klassifikation

Code

Display

Properties

FHIR Terminology Module: Resources

CodeSystem

Terminologie/Klassifikation

Code

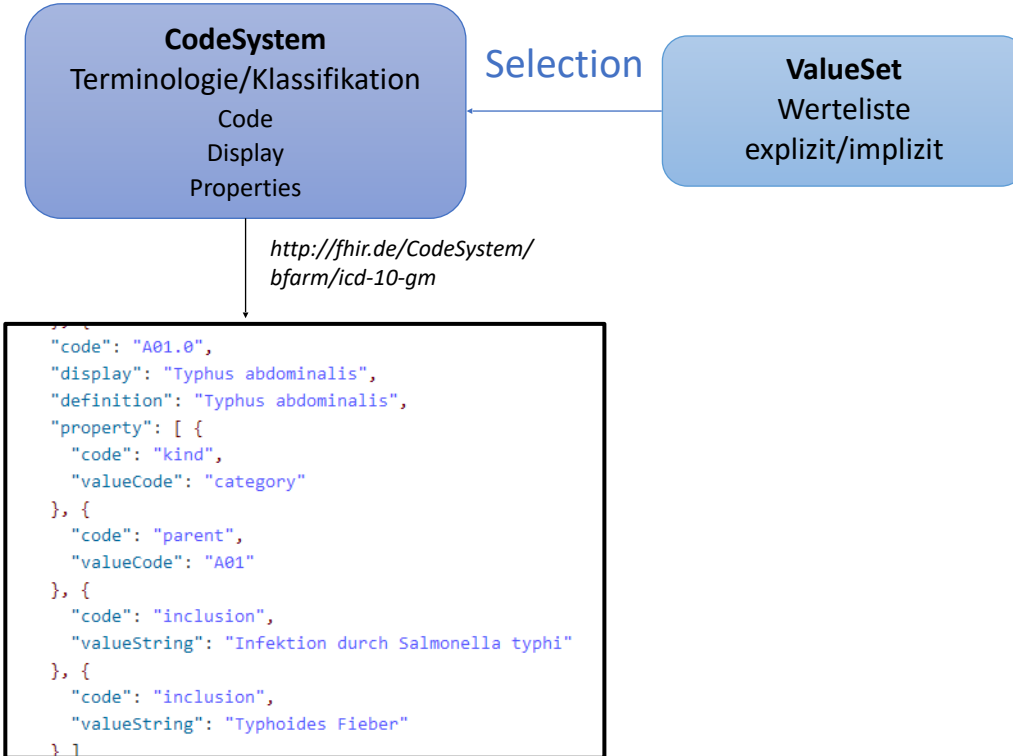
Display

Properties

[http://fhir.de/CodeSystem/
bfarm/icd-10-gm](http://fhir.de/CodeSystem/bfarm/icd-10-gm)

```
{
  "code": "A01.0",
  "display": "Typhus abdominalis",
  "definition": "Typhus abdominalis",
  "property": [ {
    "code": "kind",
    "valueCode": "category"
  }, {
    "code": "parent",
    "valueCode": "A01"
  }, {
    "code": "inclusion",
    "valueString": "Infektion durch Salmonella typhi"
  }, {
    "code": "inclusion",
    "valueString": "Typhoides Fieber"
  } ]
}
```

FHIR Terminology Module: Resources



FHIR Terminology Module: Resources

CodeSystem

Terminologie/Klassifikation

Code

Display

Properties

Selection

ValueSet

Werteliste

explizit/implizit

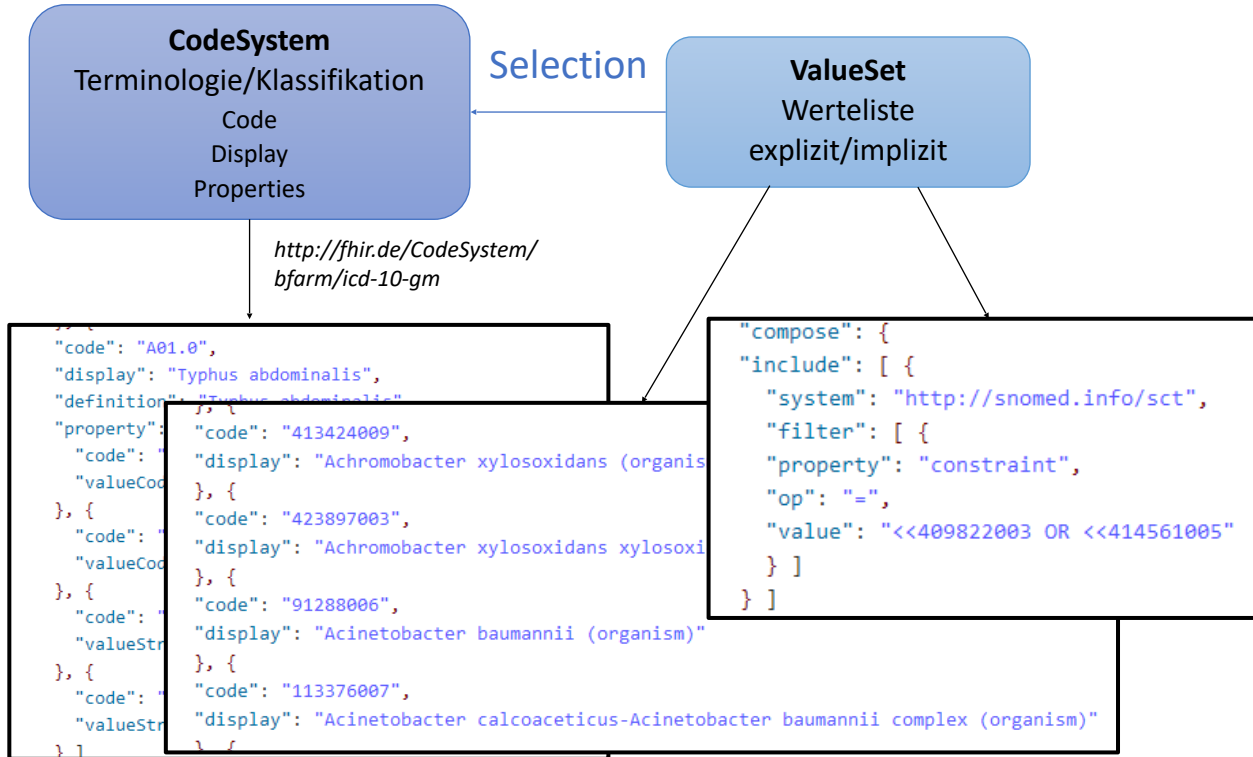
<http://fhir.de/CodeSystem/bfarm/icd-10-gm>

```

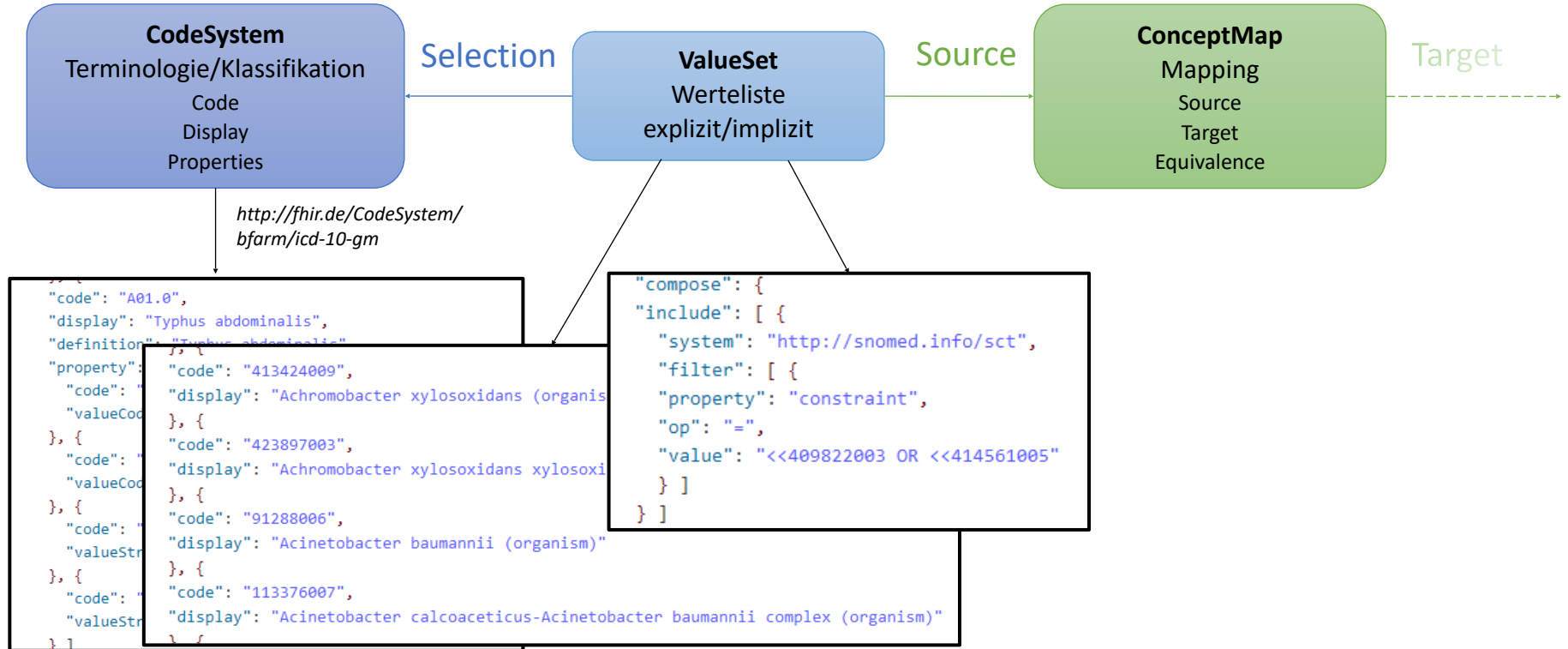
{
  "code": "A01.0",
  "display": "Typhus abdominalis",
  "definition": "Typhus abdominalis",
  "property": {
    "code": "413424009",
    "display": "Achromobacter xylosoxidans (organism)"
  }, {
    "code": "423897003",
    "display": "Achromobacter xylosoxidans xylosoxidans (organism)"
  }, {
    "code": "91288006",
    "display": "Acinetobacter baumannii (organism)"
  }, {
    "code": "113376007",
    "display": "Acinetobacter calcoaceticus-Acinetobacter baumannii complex (organism)"
  }
}

```

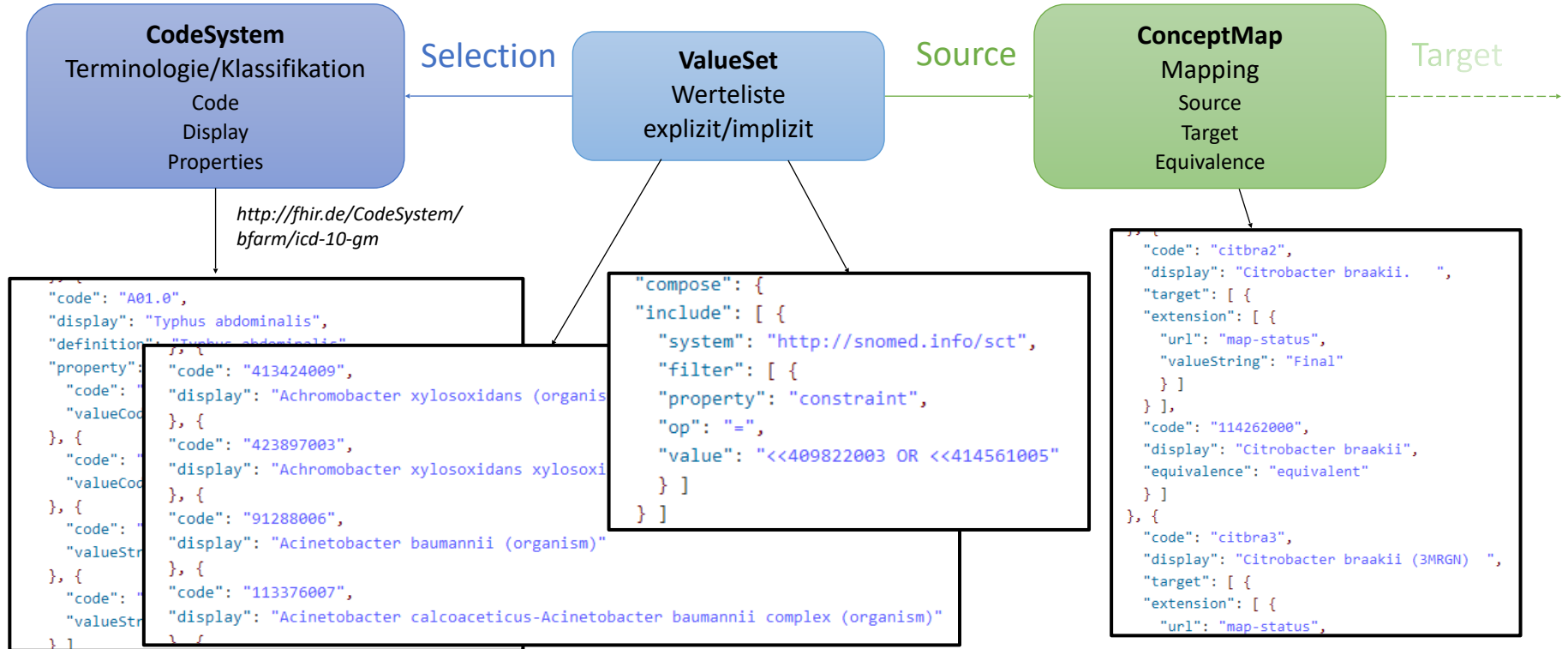
FHIR Terminology Module: Resources



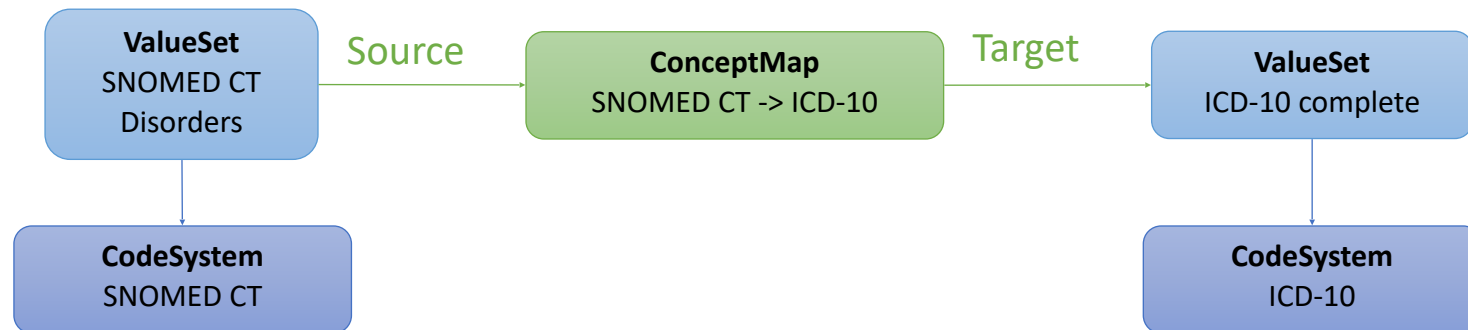
FHIR Terminology Module: Resources



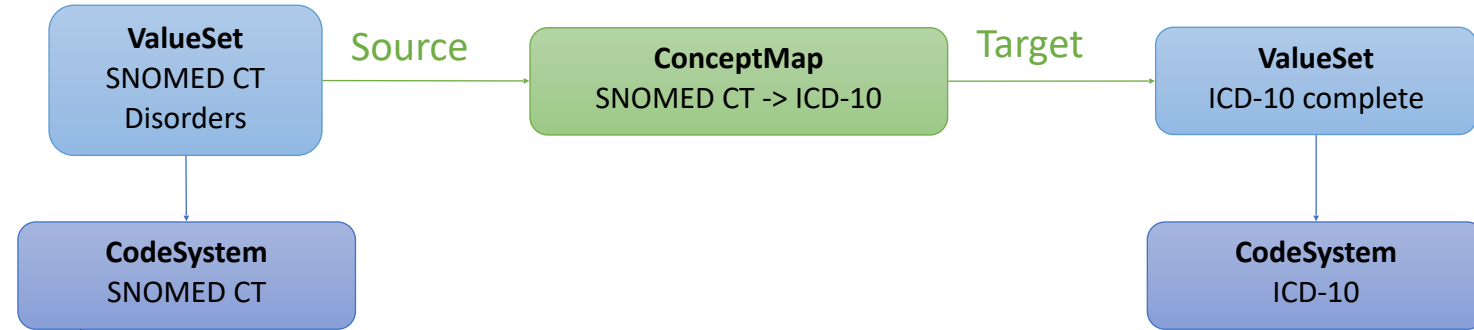
FHIR Terminology Module: Resources



FHIR Terminology Module: Services



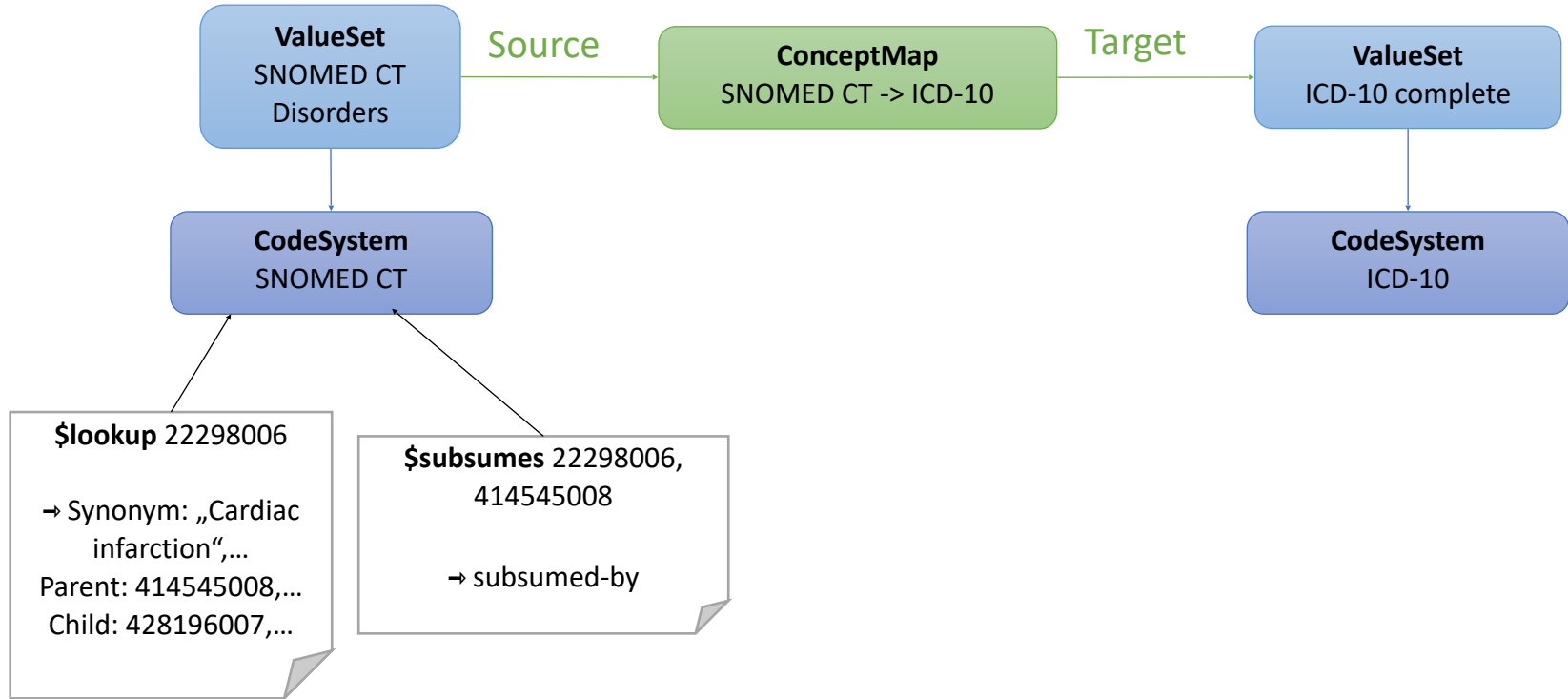
FHIR Terminology Module: Services



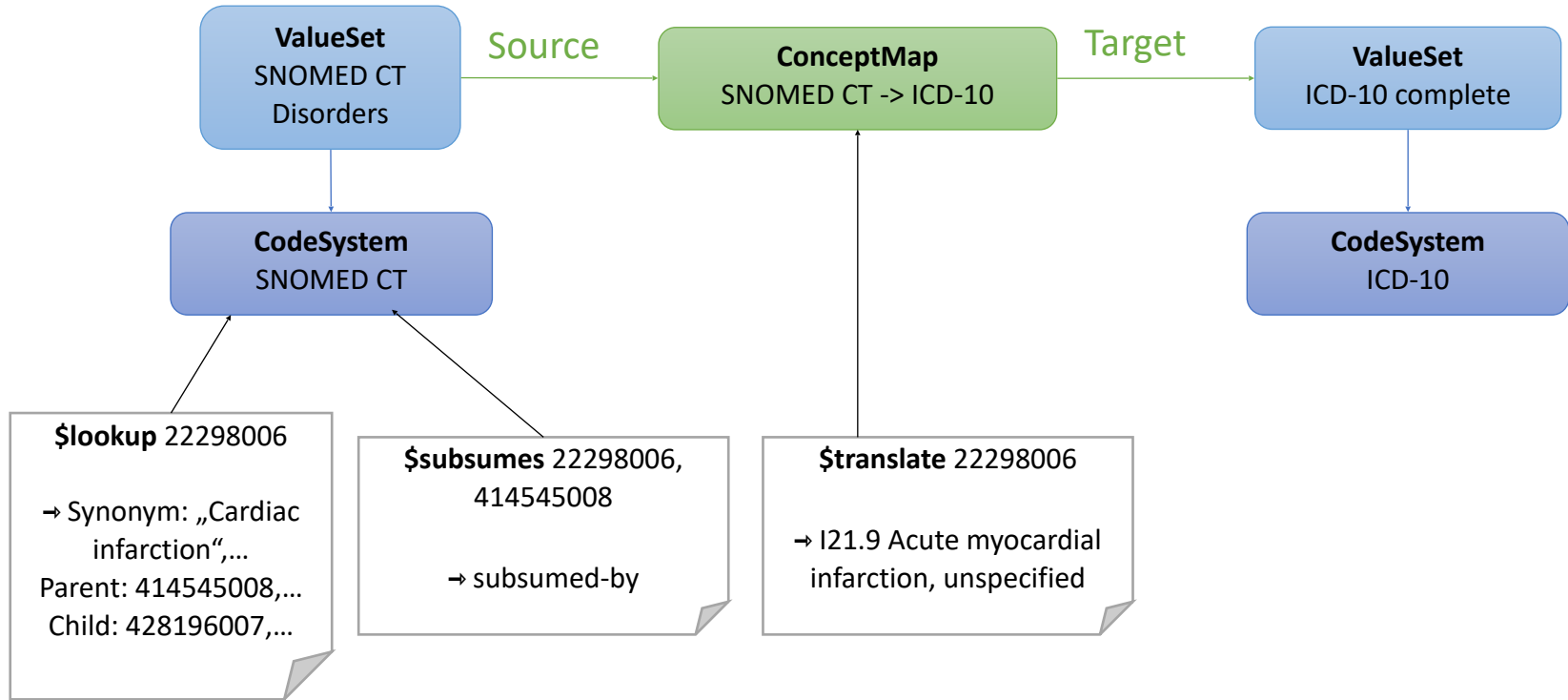
\$lookup 22298006

→ Synonym: „Cardiac
infarction“,...
Parent: 414545008,...
Child: 428196007,...

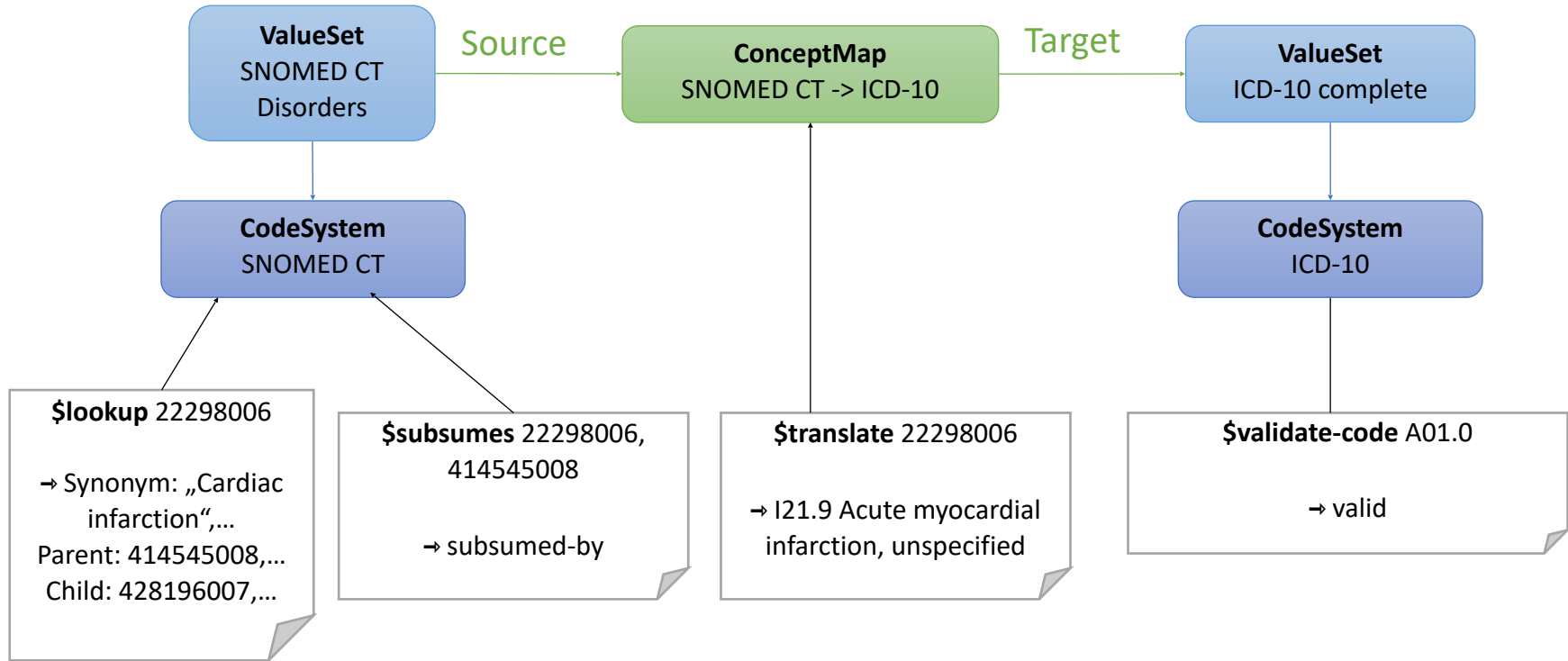
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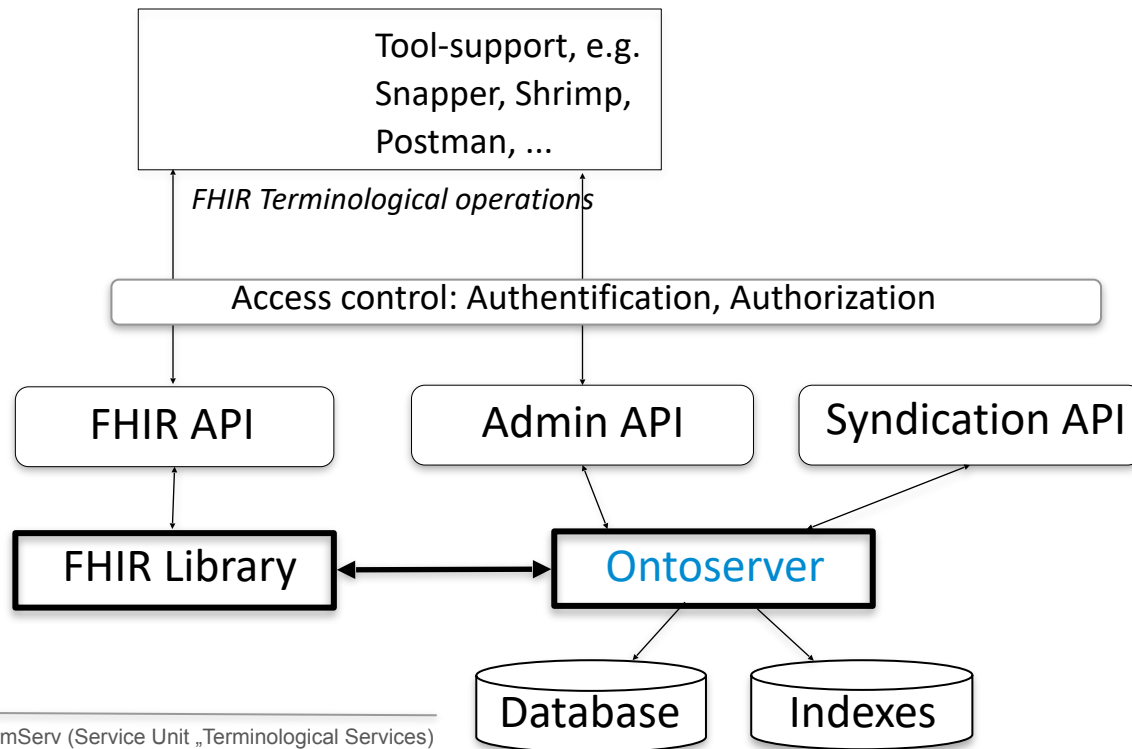
FHIR Terminology Module: Services



FHIR Terminology Module: Services



Today's presentations in an overall context



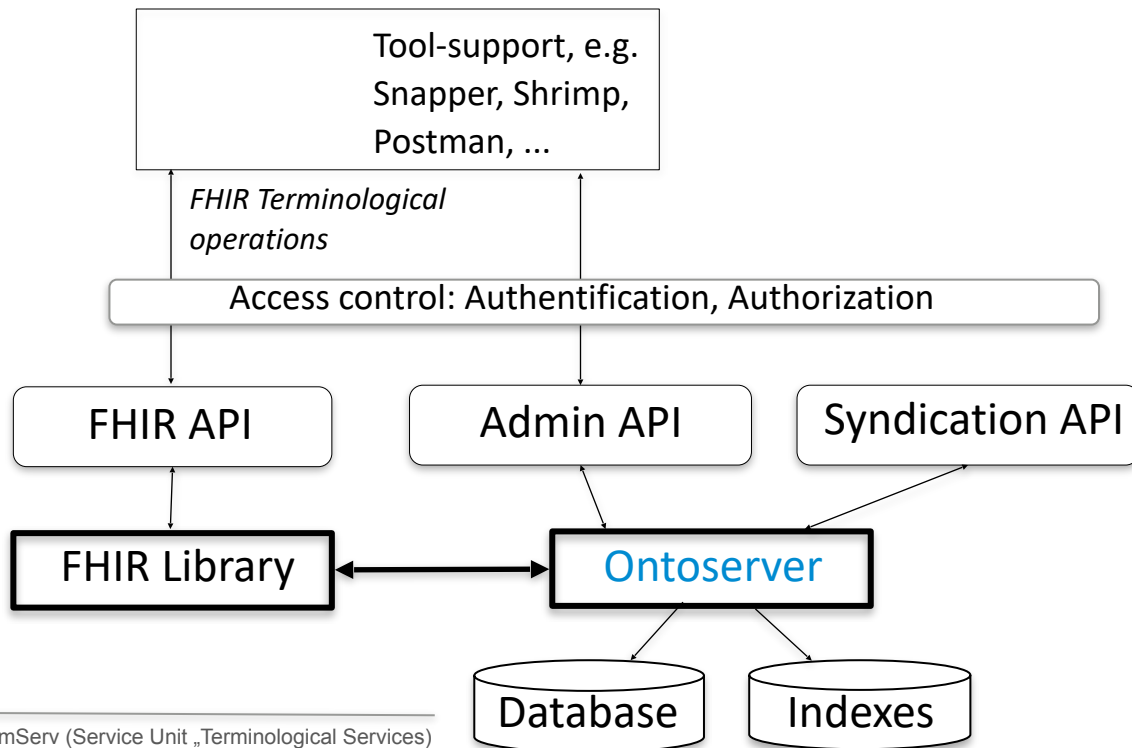
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Session 1

Relevant FHIR Resources and Operations

CodeSystem	ValueSet	ConceptMap
\$lookup	\$expand	\$translate
\$validate-code	\$validate-code	\$closure
\$subsumes		



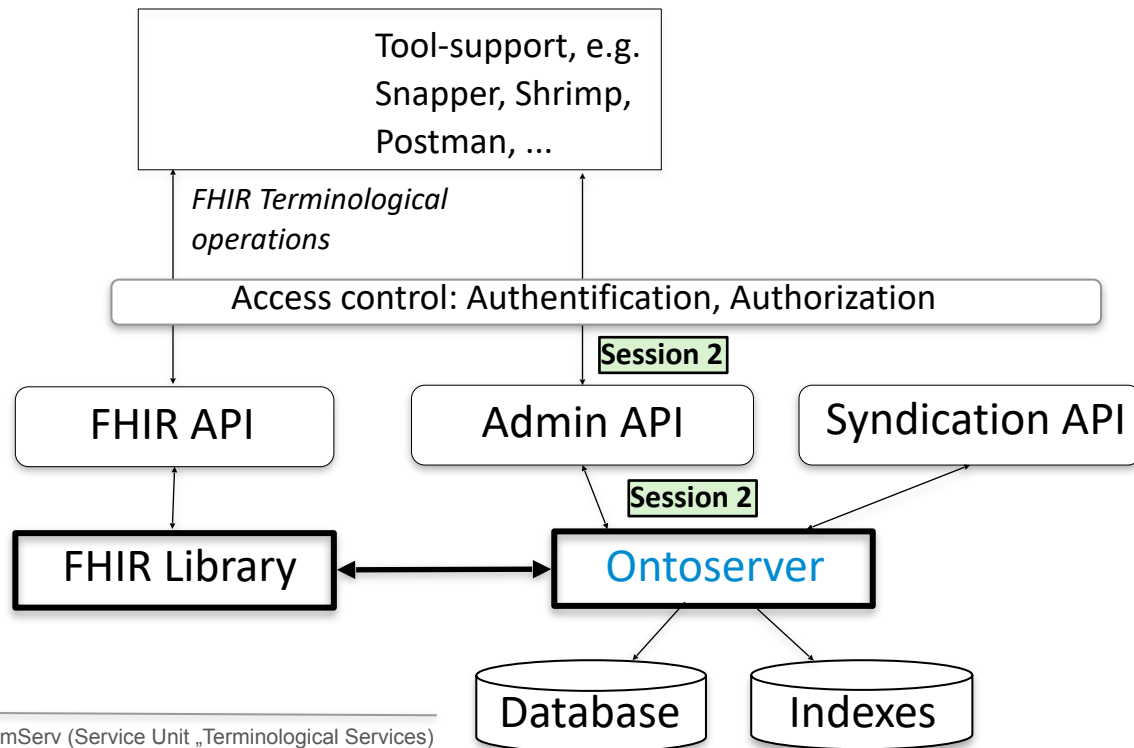
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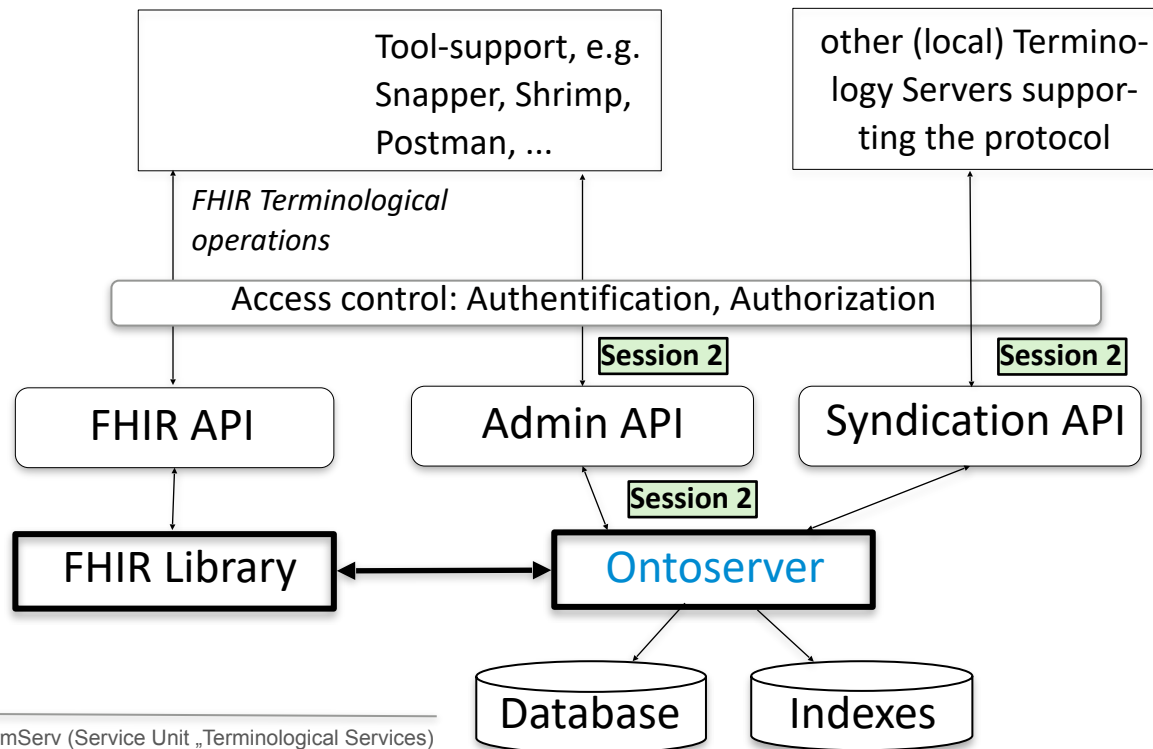
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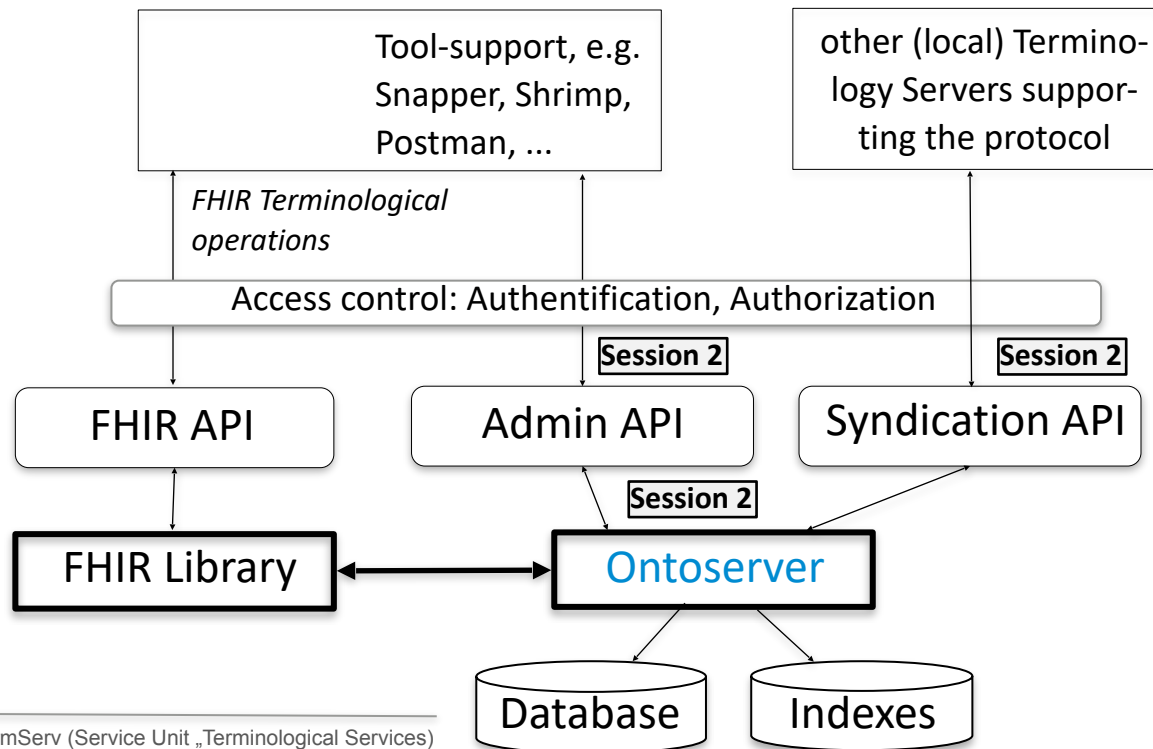
Session 3

Onboarding partners

Session 1

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context

Session 4b

Offline provision via DSF-Framework

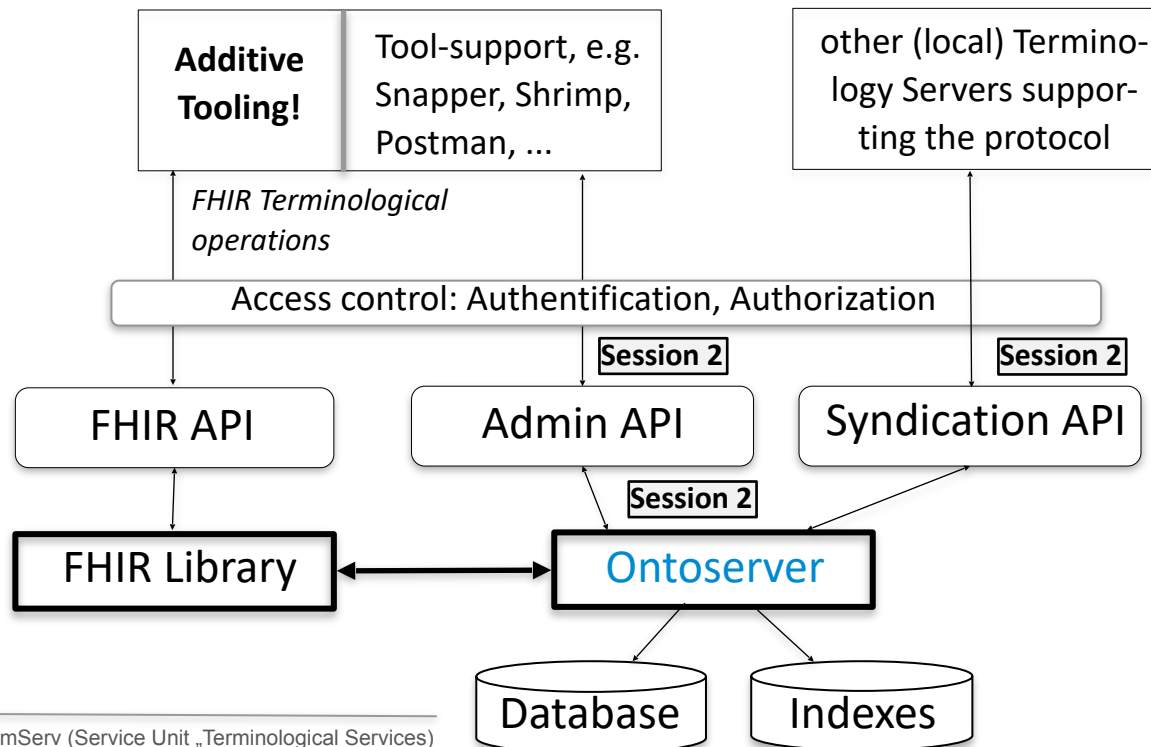
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Offline provision via DSF-Framework

Session 3

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Session 4a

BabelFSH tool for
preparation content

**Additive
Tooling!**

Tool-support, e.g.
Snapper, Shrimp,
Postman, ...

other (local) Terminology
Servers supporting
the protocol

FHIR Terminological
operations

Access control: Authentication, Authorization

FHIR API

Session 2

Admin API

Session 2

Syndication API

FHIR Library

Session 2

Ontoserver

Database

Indexes

Session 1

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Preparation of terminologies from KDS 2.0

Experience gained after years of uploading (versions of)
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➡ urgent need for quality improvement

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➡ urgent need for quality improvement, .e.g.

- Missing VS/CS in FHIR packages (esp. KDS 2.0)
- Original sources of terminologies not available as FHIR Coding systems
- Identification of (apparently) similar VS/CS in different KDS modules
- Harmonized use of metadata (e.g. „properties“) across all resources
- Content not conforming to Naming Conventions
- Improvements of content, e.g. Displays
- Expanding implicitly defined value sets
- ...

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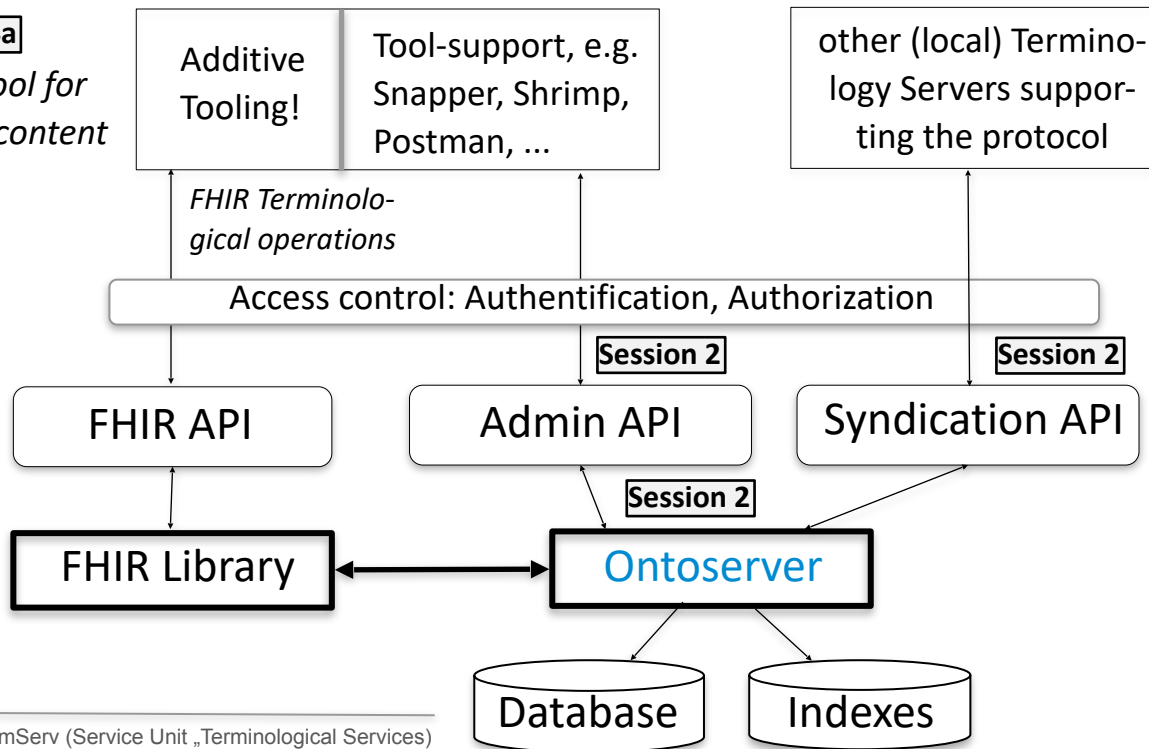
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Cascading Terminology Servers (Vision)

