



Week 2: Development Tasks

Unit 3: Generic Capabilities

Generic Capabilities

Generic providers

The SAP Cloud Application Programming Model provides generic service providers, which automatically serve metadata as well as most CRUD requests out-of-the-box.

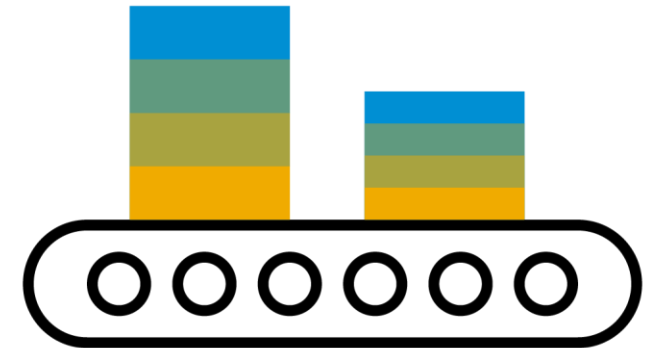


Generic Capabilities

Generic providers

Automatic CRUD handler for serving:

- requests from primary data sources
- structured data via compositions, including
 - deep inserts & updates
 - cascaded deletes

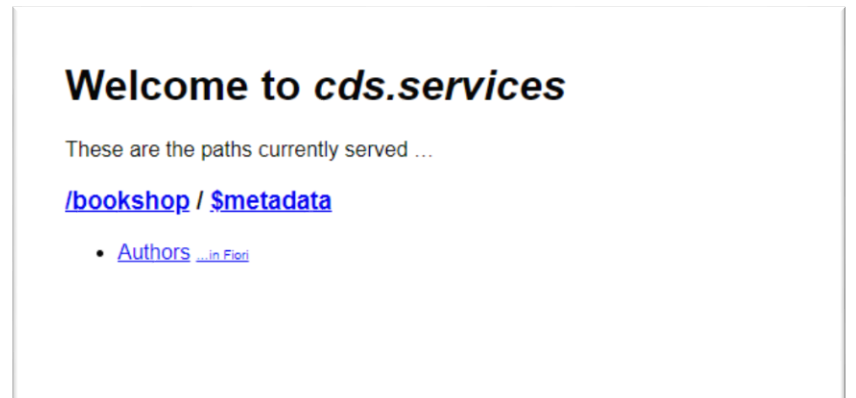
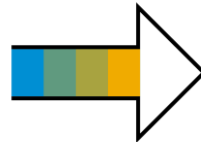


Generic Capabilities

Auto-exclude

All associations pointing to a target outside of a service are automatically excluded.

```
entity Books : cuid {  
  title : String;  
  author : Association to Bookshop.Authors;  
}  
  
service Bookshop {  
  entity Authors : cuid {  
    name : String(100);  
    books : Association to many Books on books.author =  
$self;  
  }  
}
```



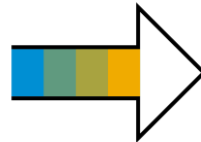
Generic Capabilities

Auto-expose

- With auto-exposure, association targets will automatically be exposed in services.
- Enable it with **@cds.autoexpose** to entities

@cds.autoexpose

```
entity Books : cuid {  
  title : String;  
  author : Association to Bookshop.Authors;  
}  
  
service Bookshop {  
  entity Authors : cuid {  
    name : String(100);  
    books : Association to many Books on books.author =  
$self;  
  }  
}
```



Welcome to *cds.services*

These are the paths currently served ...

[/bookshop / \\$metadata](#)

- [Authors](#) ...in Fiori
- [Books](#) ...in Fiori

Generic Capabilities

ETag

- You can enable optimistic concurrency control using ETags
- An ETag represents a specific version of a resource found at a URL
- Enable via applying the **@odata.etag** annotation to a property of an entity

```
entity Foo: managed {  
    key ID: UUID;  
}  
  
annotate Foo {  
    modifiedAt @odata.etag;  
}
```

Generic Capabilities ...and more

- Suppress fields
- Auto-filled keys
- Auto-filled data
- Automatic value helps
- Computed properties
- Administrative data
- Media data
- ... and more



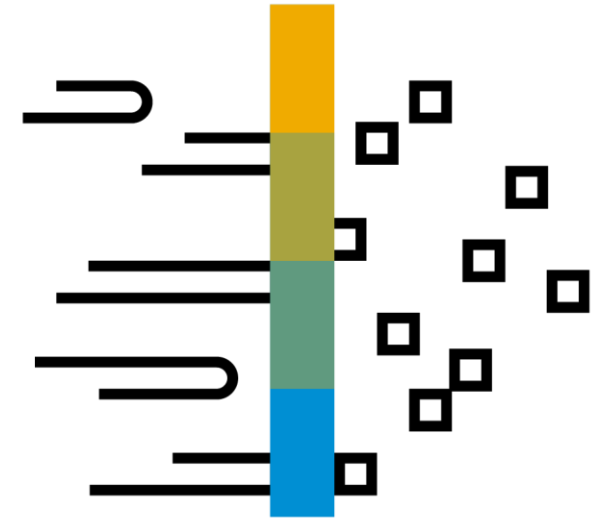
Generic Capabilities

Input validation

CRUD Constraint Checks

- @readonly
- @insertonly
- From OData @Capabilities
 - Insertable
 - Updatable
 - Deletable

The default value of those capabilities is true.
Combination with @readonly and @insertonly is not supported.

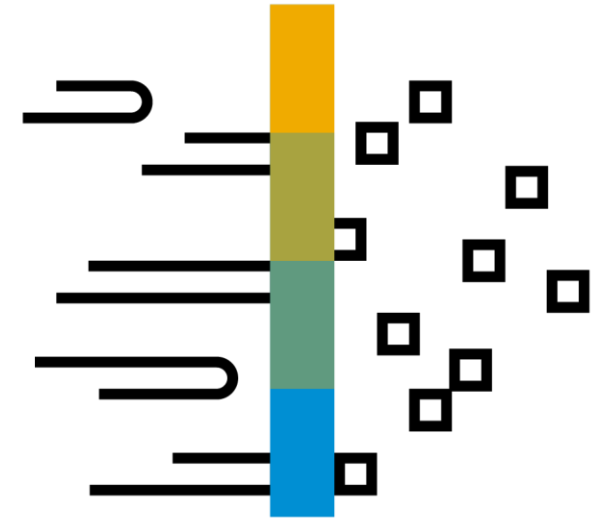


Generic Capabilities

Input validation

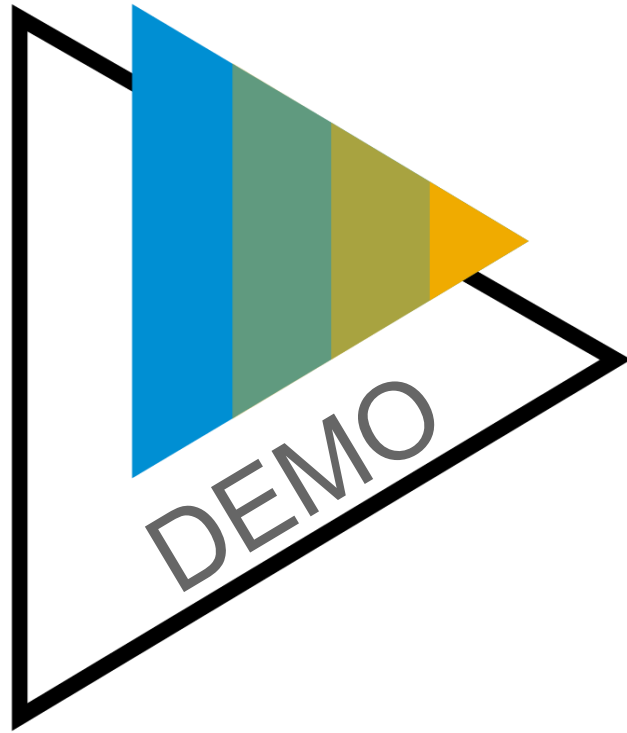
Field validation

- Read-only fields
- Mandatory input
- Unique fields
- Value ranges
- Default ordering



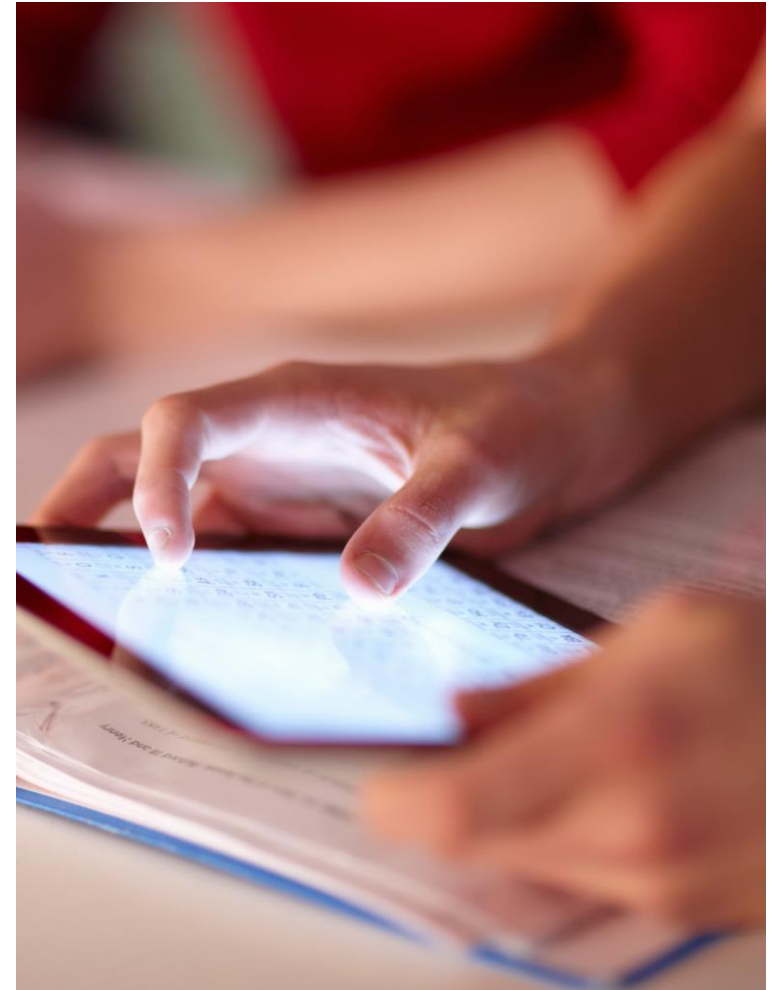
Generic Capabilities

Demo



What you've learned in this unit

- Generic providers
 - Automatic CRUD handlers
 - Auto-exclude & Auto-expose
 - ETags and more
- Input validation
 - @readonly & @insertonly
 - OData - @Capabilities



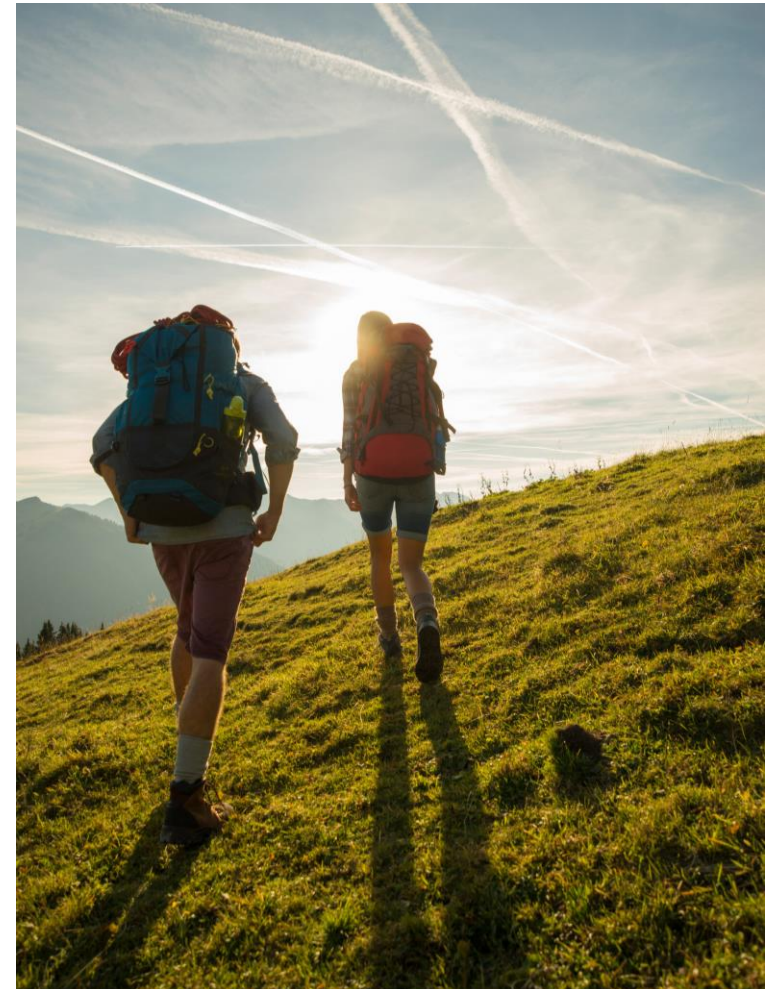
Generic Capabilities

Further reading



Additional Material

- [Generic providers](#)
- [Input validation](#)



Thank you.

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