

# Querying Data

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# Coming Up



## Querying resources

- Selecting properties
- Including related resources
- Ordering
- Paging
- Filtering

## System query options



# Passing Query Options

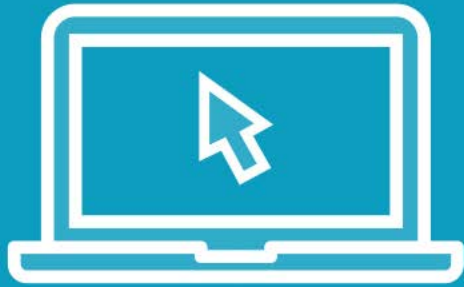


`root/resource_path`

`root/resource_path?queryoptions`

`root/resource_path?$select=property`

# Demo



## Selecting Specific Properties (Part 1)

- EntitySet
- \$select query option
- Comma-separated list



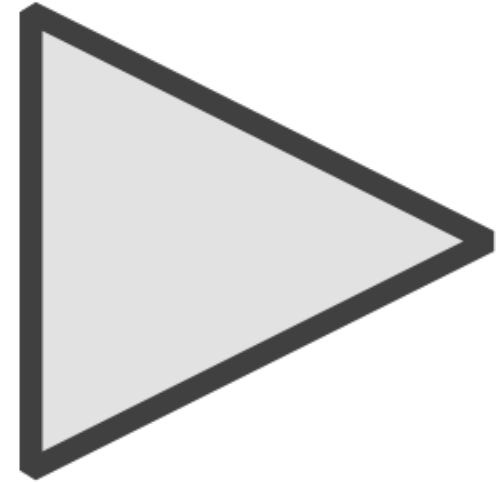
# How OData Queries Are Handled



Parse



Validate



Apply

# The Importance of Deferred Execution



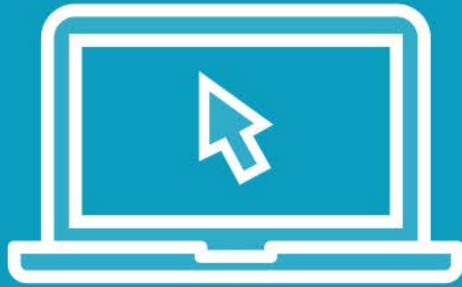
**IQueryable returned from  
ODataController**

**Deferred execution**

- Query variable stores query commands
- Execution deferred until iteration

**EnableQuery extends IQueryable,  
execution occurs afterwards**

# Demo

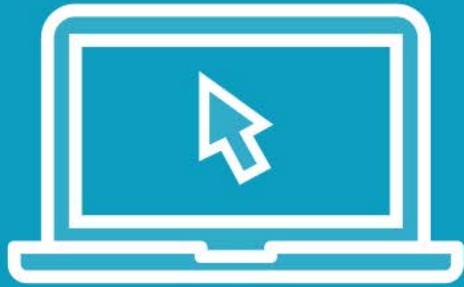


## Selecting Specific Properties (Part 2)

- Single entity
- \$select query option
- Comma-separated list



# Demo



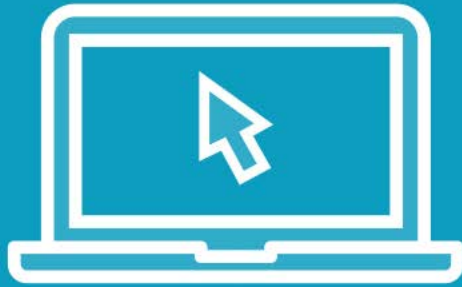
## Including Related Entities

- \$expand query option
- Comma-separated list
- \$expand options: parentheses





# Demo

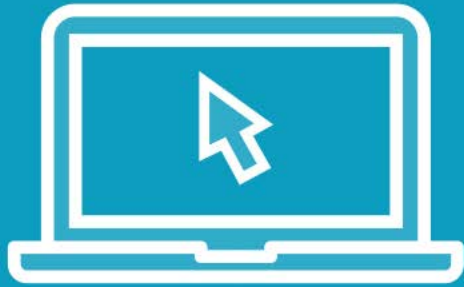


## Ordering Entities

- \$orderby query option
- Comma-separated list of expressions
- asc, desc



# Demo

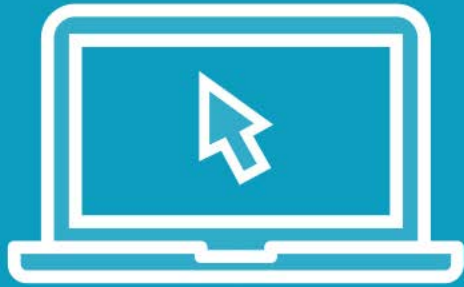


## Paging Through Entities

- Client-driven
  - \$top, \$skip
- Server-driven
  - [EnableQuery]



# Demo

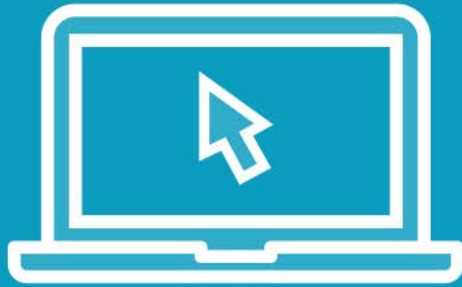


## Filtering Entities - Logical Operators

- \$filter query option
- Expression that evaluates to true or false
- Logical operators evaluate to true or false



# Demo

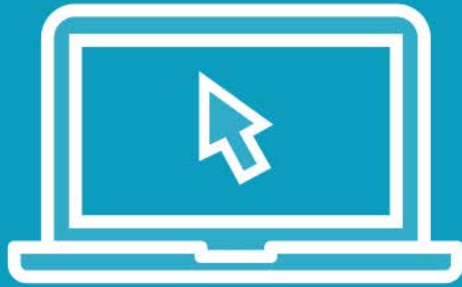


## Filtering Entities - Lambda Operators

- Evaluate boolean expression on collection
- *lambda(lambda name:boolean expression)*
- any, all



# Demo



## Filtering Entities - Arithmetic Operators

- Operands evaluate to numeric types



# Operator Precedence

High precedence  
mul, div, mod

add, sub

gt, ge, lt, le, isof

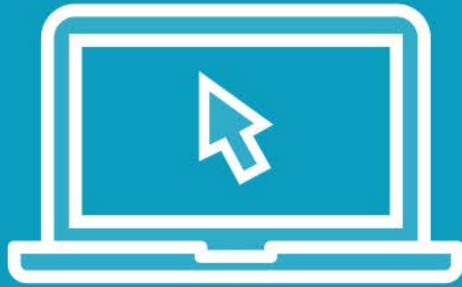
Equality  
eq, ne

Conditional AND  
and

Conditional OR  
or



# Demo

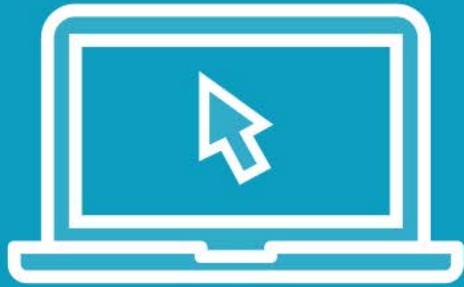


## Filtering Entities - Grouping Operators

- Group parts of expression together with () for precedence



# Demo

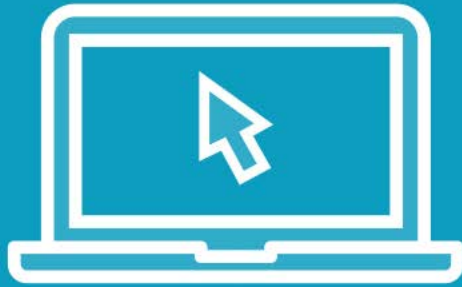


## Filtering Entities - Canonical Functions





# Demo



## Filtering Entities - The Implicit Literal

- \$it
- Refer to instance of collection in expression



# What's Missing?



## Partially implemented

- \$it

## Missing

- \$root  
serviceRoot/People?\$filter=FirstName  
eq \$root/People('1')/FirstName
- \$search

# Summary



## **[EnableQuery]**

- Parse, validate, apply
- Deferred execution

## **Selecting specific properties**

- \$select

## **Including related entities/sets**

- \$expand

## **Ordering entities**

- \$orderby

## **Paging**

- Client-driven, server-driven



# Summary



## Filtering

- `$filter`
  - Logical operators
  - Lambda operators
  - Arithmetic operators
  - Grouping operator
  - Canonical functions
  - Implicit literal

## Missing functionality

