

# Querying Documents with the SQL API

---



**Leonard Lobel**

CTO, SLEEK TECHNOLOGIES

[lennilobel.wordpress.com](http://lennilobel.wordpress.com)



# Rich Query with SQL

## Cosmos DB SQL

Special version of SQL designed for JSON  
.NET SDK also includes a LINQ provider

## Familiar keywords

SELECT, FROM, WHERE, JOIN,  
IN, BETWEEN, ORDER BY

## Work with JSON

Descend into any subsection of a document  
Iterate nested arrays for intra-document join  
Return documents as-is, or as custom shape

## Example

```
SELECT ch.name, ch.birthdate  
FROM Families AS f  
JOIN ch IN f.children  
WHERE f.address.state = 'CA'
```



# SQL Operators and Functions

## Common operators

Math	+ - * / %
Bitwise	& ^ < >> >>>
Logical	AND, OR
Comparison	= <> > >= < <=
Ternary & Coalesce	? : ??
String	(concatenate)

## Built-in functions

Math	ABS, CEILING, EXP, FLOOR, LOG, LOG10, POWER, ROUND, SIGN, SQRT, SQUARE, TRUNC, ACOS, ASIN, ATAN, ATN2, COS, COT, DEGREES, PI, RADIANS, SIN, TAN
Type Checking	IS_ARRAY, IS_BOOL, IS_NULL, IS_NUMBER, IS_OBJECT, IS_STRING, IS_DEFINED, IS_PRIMITIVE
String	CONCAT, CONTAINS, ENDSWITH, INDEX_OF, LEFT, LENGTH, LOWER, LTRIM, REPLACE, REPLICATE, REVERSE, RIGHT, RTRIM, STARTSWITH, SUBSTRING, UPPER
Array	ARRAY_CONCAT, ARRAY_CONTAINS, ARRAY_LENGTH, ARRAY_SLICE
Aggregate	COUNT, SUM, MIN, MAX, AVG
Spatial	ST_DISTANCE, ST_WITHIN, ST_INTERSECTS, ST_ISVALID, ST_ISVALIDDETAILED



# Demo



## Simple SQL Query



# Demo



## Scalar Expression Queries



# Demo



## Query Operators and Built-in Functions



# Demo



## Querying Documents in a Collection



# Demo



## More SQL Queries





# Demo



## Aggregation Queries



# Demo



## Spatial Queries



# Summary



Query documents using SQL

Accessing nested data

Projecting custom shapes

Query operators and built-in functions

