

SQL Server and JSON

It's not a Horror Movie!

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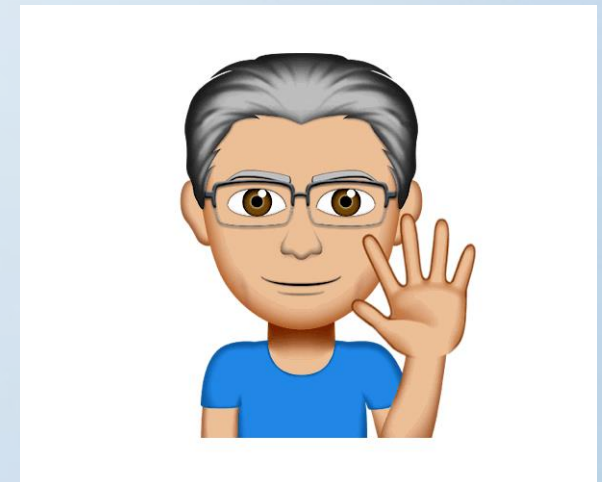


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About Me

- Business Intelligence and Integration Architect at Wellesley College
- Oracle Database Design and Development – 30 years
- SQL Server Database and Business Intelligence Stack – 5 years
- 8 Time SQL Saturday Boston Attendee
- First Time Presenter
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AGENDA

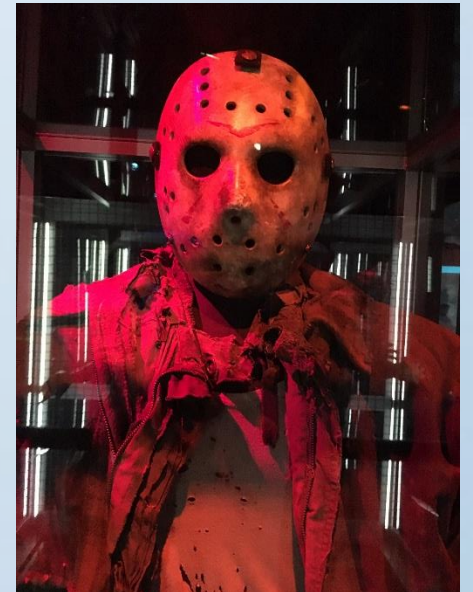
- What is JSON?
- Why Use JSON with SQL Server?
- SQL Server 2016 Support for JSON
- Get JSON Formatted Data Into SQL Server Tables
- Get Data Out from SQL Server Tables in JSON Format
- Power BI Visualization of JSON Data

What is JSON?

- JavaScript **O**bject **N**otation
- Lightweight Data Interchange Format
- Facilitates Integration of Data Between Systems / Applications
- Easy to Read and Write
- Easy to Parse and Generate

Source: <http://www.json.org/>

Photo taken at Museum of Pop Culture – Seattle, WA



What is JSON?

- Name / Value Pairs
 - {"title":"Scream","year":1996,"director":"Wes Craven"}
 - {"title":"Halloween","year":1978,"director":"John Carpenter"}
- JSON Data Types
 - String, Number, Boolean (true or false), null
 - Array
 - "genre":["Horror", "Slasher"]
 - Object
 - "movie":{"MovieId":29213,"Title":"Friday the 13th","ReleaseYear":1980,"Director":"Sean S. Cunningham","CastListing":["Betsy Palmer", "Adrienne King", "Kevin Bacon"],"Genre":"Horror"}



Photo taken at Museum of Pop Culture – Seattle, WA

Movies JSON Data Set

The screenshot shows the JSON Editor Online interface. The left pane displays a JSON array of movie objects. The right pane shows a search result for 'halloween'.

JSON Editor Online Interface:

- Left Pane (Raw JSON):** Displays a JSON array of movie objects. The visible portion includes movies like "Huckleberry Finn", "If I Were King", "The Jack-Knife Man", "The Jay Bird", "The Last of the Mohicans", "The Mark of Zorro", and "The Mollycoddle".
- Right Pane (Search Results):** Shows 17 results for the search term "halloween". The results are displayed in a list format with expandable/collapsible icons. The selected result (index 10097) is expanded, showing the following details:
 - title:** Halloween
 - year:** 1978
 - director:** John Carpenter
 - cast:** Donald Pleasence, Jamie Lee Curtis, P.J. Soles, Charles Cyphers, Kyle Richards
 - genre:** Horror
 - notes:** inspired Halloween film franchise

Footer: JSON Editor Online 3.7.5 • History • Sourcecode • Report a bug • Data policy • Copyright 2011-2016 Jos de Jong

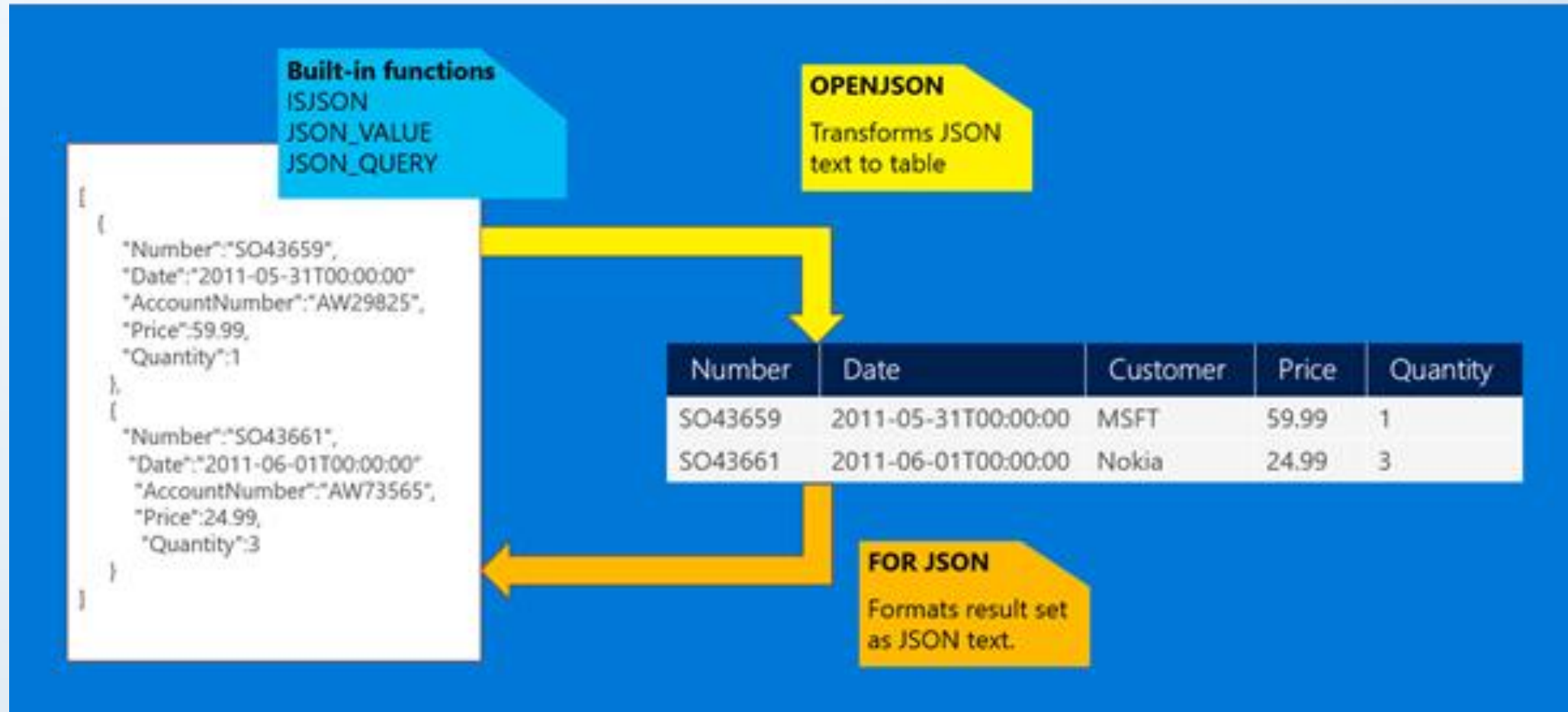
Why Use JSON with SQL Server?

- Automate Data In to SQL Server from NoSQL Sources
- Automate Data Out from SQL Server to NoSQL Sources
- Integrate Data to / from Many Cloud-Based Services
- Represents Nested Relationships Flexibly
- More Compact and Readable than CSV and XML Formats

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SQL Server 2016 Support for JSON



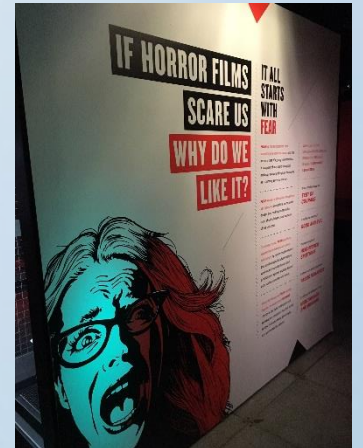
Source: <https://docs.microsoft.com/en-us/sql/relational-databases/json/json-data-sql-server?view=sql-server-2017>

SQL Server 2016 Support for JSON

- Facilitating Data In
 - ISJSON
 - OPENROWSET
 - OPENJSON
- Facilitating Data Out
 - FOR JSON AUTO
 - FOR JSON PATH
 - FOR JSON PATH, ROOT
 - INCLUDE_NULL_VALUES
 - JSON_VALUE
 - JSON_QUERY

Note: No JSON-specific column data type. Use nvarchar(max)

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Get JSON Formatted Data Into SQL Server Tables

```
insert into dbo.MoviesJSON(MoviesJSON)
```

```
select MoviesData.*
```

```
from openrowset (bulk 'C:\Presentations\Boston Code Camp\wikipedia-movie-data-master\movies.json', single_clob) as MoviesData;
```

```
select ISJSON(MoviesJSON) IsJSON, MoviesJSON, len(MoviesJSON) as LengthMoviesJSON
```

```
from dbo.MoviesJSON;
```

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SQL Server 2016 – JSON In Demo



Image Source: Pixabay

Get Data Out from SQL Server Tables in JSON Format

```
select *  
  
from dbo.Movies  
  
where Genre like '%Horror%'  
  
FOR JSON PATH, ROOT('Movies');  
  
select *  
  
from dbo.Movies  
  
where Genre like '%Horror%'  
  
FOR JSON PATH, WITHOUT_ARRAY_WRAPPER;
```

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SQL Server 2016 – JSON Out Demo



Image Source: Pixabay

Power BI / JSON Data Visualization Demo



Image Source: Pixabay

Questions?

References

- <https://github.com/prust/wikipedia-movie-data>
- <http://www.json.org/>
- <https://docs.microsoft.com/en-us/sql/relational-databases/json/json-data-sql-server?view=sql-server-2017>
- <https://www.red-gate.com/simple-talk/sql/learn-sql-server/json-support-in-sql-server-2016/>
- <https://docs.microsoft.com/en-us/sql/relational-databases/json/solve-common-issues-with-json-in-sql-server?view=sql-server-2017>
- <https://channel9.msdn.com/Shows/Data-Exposed/SQL-Server-2016-and-JSON-Support>
- <https://channel9.msdn.com/Shows/Data-Exposed/Using-JSON-in-SQL-Server-2016-and-Azure-SQL-Database>
- <https://channel9.msdn.com/events/DataDriven/SQLServer2016/JSON-as-a-bridge-between-NoSQL-and-relational-worlds>

Thank You!

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