



SQL Server developers' Toolbox

Riccardo Perico

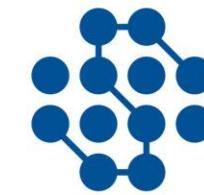
BI Architect @ Lucient Italia | Microsoft Data Platform MVP



Sponsor & Org



MINDMASH
KEEP THINKING



DATA SKILLS
UNDERSTANDING THE WORLD

M D
massive dynamic holding H



daniela
malvisi
COMMUNICATION

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ITALIA


Bi Factory
DATA KNOWLEDGE ADVISOR

Riccardo Perico

riccardo.perico@lucient.it

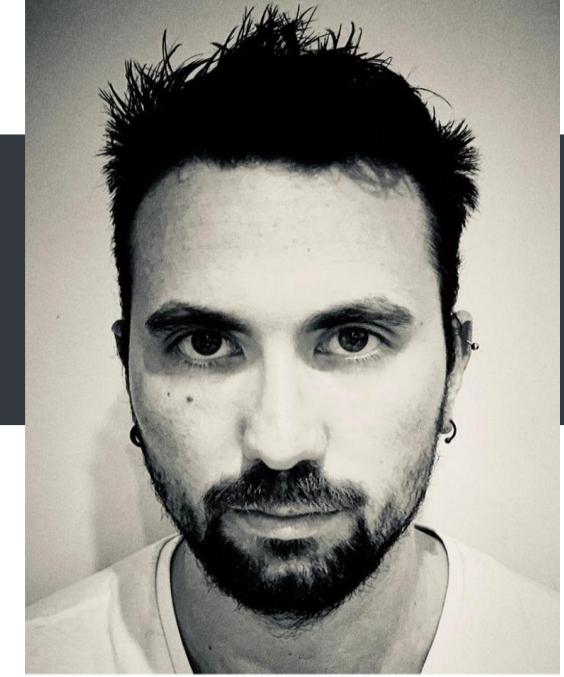
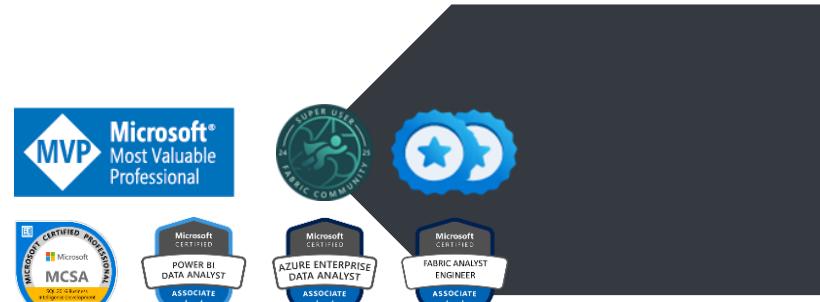
 github.com/R1k91

 @r1k91.bsky.social

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 linkedin.com/in/riccardo-perico

 [medium.com/riccardo-perico](https://medium.com/@riccardo.perico)



BI Architect @ **LUCIENT[®]**
ITALIA

+15 years in Microsoft “Data Realm”

Giving my little contribution to the community



**Power Platform
World Tour**

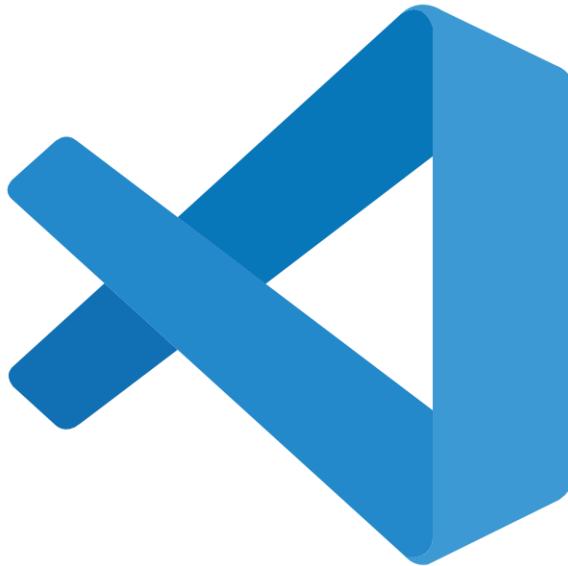
DATA SATURDAYS



Dev>Marche



Where is Microsoft investing?



SSMS is alive and well

2 major releases in 12 months

V21

- Based on new Visual Studio shell
- Leverage Visual Studio installer
- GitHub integration
- Vertical tabs layout
- Export from details
- Dark theme

V22

- AMD64 support in preview
- GitHub Copilot integration
- New connection dialog
- Details zoom decoupled



Is VSCode really ready?

Azure Data Studio is dead, and now?

Is Visual Studio Code ready to rock?



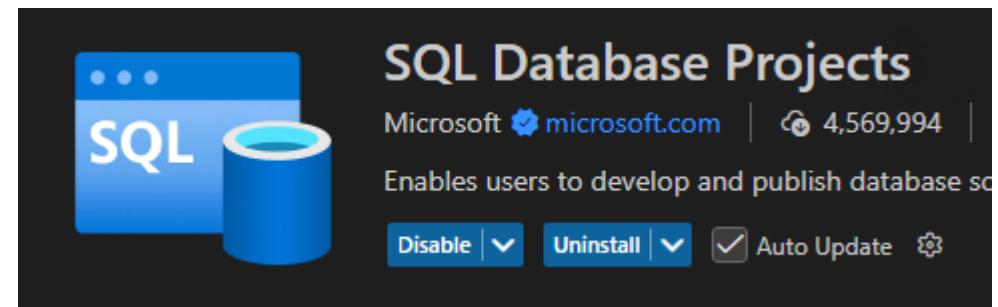
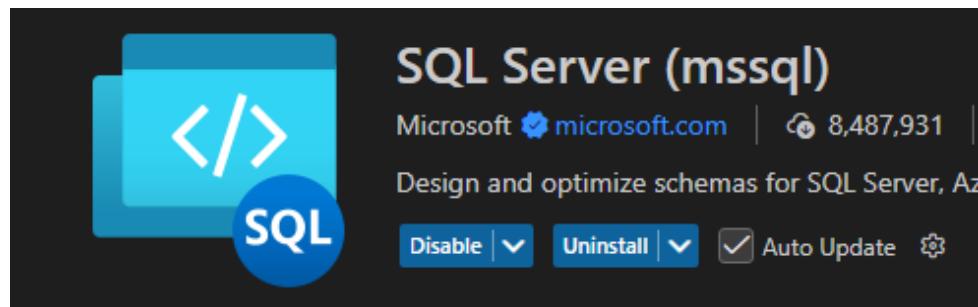
Riccardo Perico 7 min read · Feb 28, 2025



...



Two extensions needed



Mssql extension



```
. | master
1  SELECT TOP (1000) [id]
2  |     ,[descr]
3  |     FROM [MCP].[dbo].[myTable]
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS **QUERY RESULTS** SNOWFLAKE AZURE [] X

Results (1) Messages Open in New Tab

	id	descr
1	1	Sample 1
2	2	Sample 2
3	3	Sample 3
4	4	Sample 4
5	5	Sample 5
6	6	Sample 6
7	7	Sample 7
8	8	Sample 8
9	9	Sample 9
10	10	Sample 10

Switch to text **Save as CSV** **Save as JSON** **Save as Excel**

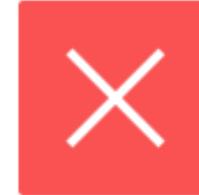
Database Projects extension



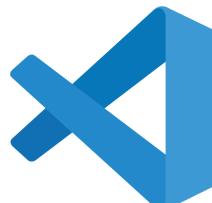
- No offline IntelliSense
- Project explorer and navigation not fluid
- Buggy schema compare
- Few templates for create item
- Missing database settings page



Database Projects SDK-style



- New database project format
- Make it standard across platforms (SQL Server, Azure SQL, Fabric WH...)
- But... it is preview
- ...super preview



The image shows two code editors side-by-side, both displaying XML build files.

WideWorldImportersDW.sqlproj:

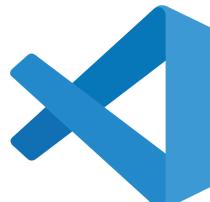
```
2  <Project DefaultTargets="Build" xmlns="http://schemas.microsoft.com/developer/msbuild/2003
3    <PropertyGroup>
16   <ModelCollation>1033, CI</ModelCollation>
17   <DefaultFileStructure>BySchemaAndSchemaType</DefaultFileStructure>
18   <DeployToDatabase>True</DeployToDatabase>
19   <TargetFrameworkVersion>v4.5</TargetFrameworkVersion>
20   <TargetLanguage>CS</TargetLanguage>
21   <AppDesignerFolder>Properties</AppDesignerFolder>
22   <SqlServerVerification>False</SqlServerVerification>
23   <IncludeCompositeObjects>True</IncludeCompositeObjects>
24   <TargetDatabaseSet>True</TargetDatabaseSet>
25 </PropertyGroup>
26   <PropertyGroup Condition=" '$(Configuration) | $(Platform)' == 'Release | AnyCPU' ">
27     <OutputPath>bin\Release</OutputPath>
28     <BuildScriptName>$(_MSBuildProjectName).sql</BuildScriptName>
29     <TreatWarningsAsErrors>False</TreatWarningsAsErrors>
30     <DebugType>pdbsonly</DebugType>
31     <Optimize>true</Optimize>
32     <DefineDebug>false</DefineDebug>
33     <DefineTrace>true</DefineTrace>
34     <ErrorReport>prompt</ErrorReport>
35     <WarningLevel>4</WarningLevel>
36   </PropertyGroup>
37   <PropertyGroup Condition=" '$(Configuration) | $(Platform)' == 'Debug | AnyCPU' ">
38     <OutputPath>bin\Debug</OutputPath>
39     <BuildScriptName>$(_MSBuildProjectName).sql</BuildScriptName>
40     <TreatWarningsAsErrors>false</TreatWarningsAsErrors>
41     <DebugSymbols>true</DebugSymbols>
42     <DebugType>full</DebugType>
43     <Optimize>false</Optimize>
44     <DefineDebug>true</DefineDebug>
45     <DefineTrace>true</DefineTrace>
46     <ErrorReport>prompt</ErrorReport>
47     <WarningLevel>4</WarningLevel>
48   </PropertyGroup>
49   <PropertyGroup>
50     <visualStudioVersion Condition=" '$(VisualStudioVersion)' == ''>11.0</visualStudioVer
51     <!-- Default to the v11.0 targets path if the targets file for the current VS version
52     <SSDTEExists Condition="Exists('$(MSBuildExtensionsPath)\Microsoft\VisualStudio\v$Visu
53     <visualStudioVersion Condition=" '$(SSDTEExists)' == ''>11.0</visualStudioVersion>
54   </PropertyGroup>
55   <Import Condition=" '$(NetCoreBuild)' == 'true' " Project="$(NETCoreTargetsPath)\Microsof
56   <Import Condition=" '$(NetCoreBuild)' != 'true' AND '$(SQLDBExtensionsRefPath)' != ''>
57   <Import Condition=" '$(NetCoreBuild)' != 'true' AND '$(SQLDBExtensionsRefPath)' == ''>
58   <ItemGroup>
59     <PackageReference Condition=" '$(NetCoreBuild)' == 'true' " Include="Microsoft.NETFramew
60   </ItemGroup>
61   <ItemGroup>
62     <Folder Include="Properties" />
63   </ItemGroup>
64   <ItemGroup>
65     <None Include=".vscode\tasks.json" />
66   </ItemGroup>
67   <ItemGroup>
68     <Build Include="Application\StoredProcedures\Configuration_ApplyPartitionedColumnstore
69     <Build Include="Application\StoredProcedures\Configuration_ApplyPolybase.sql" />
70     <Build Include="Application\StoredProcedures\Configuration_ConfigureForEnterpriseEditi
71     <Build Include="Application\StoredProcedures\Configuration_EnableInMemory.sql" />
72     <Build Include="Application\StoredProcedures\Configuration_PopulateLargeSaleTable.sql"
73     <Build Include="Application\StoredProcedures\Configuration_ReseedETL.sql" />
74     <Build Include="Dimension\Tables\City.sql" />
```

WWISDKsqlproj:

```
1  <?xml version="1.0" encoding="utf-8"?>
2  <Project DefaultTargets="Build">
3    <Sdk Name="Microsoft.Build.Sql" Version="1.0.0" />
4    <PropertyGroup>
5      <Name>WWISDK</Name>
6      <ProjectGuid>{55A4A879-0A35-40CB-A407-766FE90DBF5F6}</ProjectGuid>
7      <DSP>Microsoft.Data.Tools.Schema.Sql.Sql160DatabaseSchemaProvider</DSP>
8      <ModelCollation>1033, CI</ModelCollation>
9    </PropertyGroup>
10   <ItemGroup>
11     <None Include=".vscode\tasks.json" />
12   </ItemGroup>
13   <Target Name="BeforeBuild">
14     <Delete Files="$(BaseIntermediateOutputPath)\project.assets.json" />
15   </Target>
16 </Project>
```



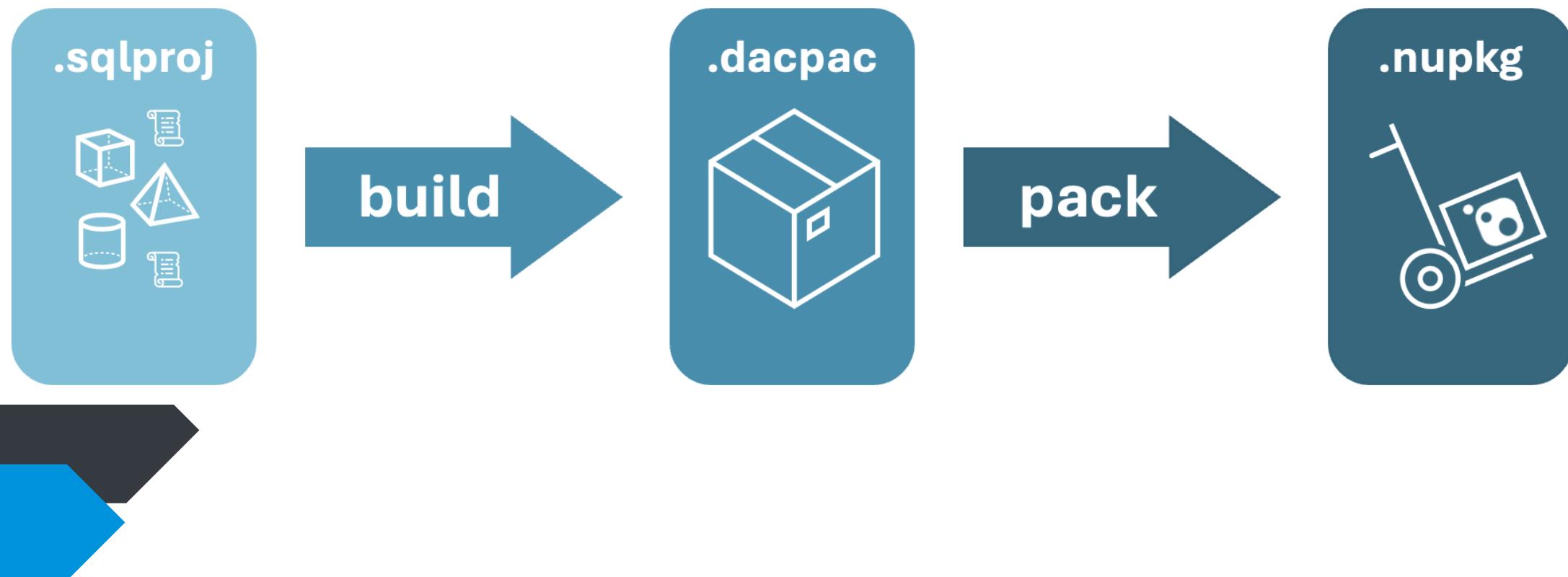

Feature	SDK-style SSDT	SSDT	ADS	VS Code
Create new empty project	X	X	X	X
Create new project from existing database		X	X	X
Open existing Microsoft.Build.Sql projects	X		X	X
Solution management and operations	X		X	
Project run build	X		X	X
Publish project to existing server	X		X	X
Publish project to a local development instance	X ¹	X ¹	X ²	X ²
Publish options/properties	X		X	X
Target platform can be updated	X		X	X
SQLCMD variables	X		X	X
Project references		X	X	
Dacpac references		X	X	X
Package references			X	



The reference matrix

		Old Style	SDK Style
Old Style	project ref	✓	✗
Old Style	dacpac ref	✓	✗
SDK Style	project ref	✓	Not Recomended
SDK Style	dacpac ref	✓	Not Recomended
SDK Style	package (nuget ref)	✗	✓

Database package reference (NuGet)



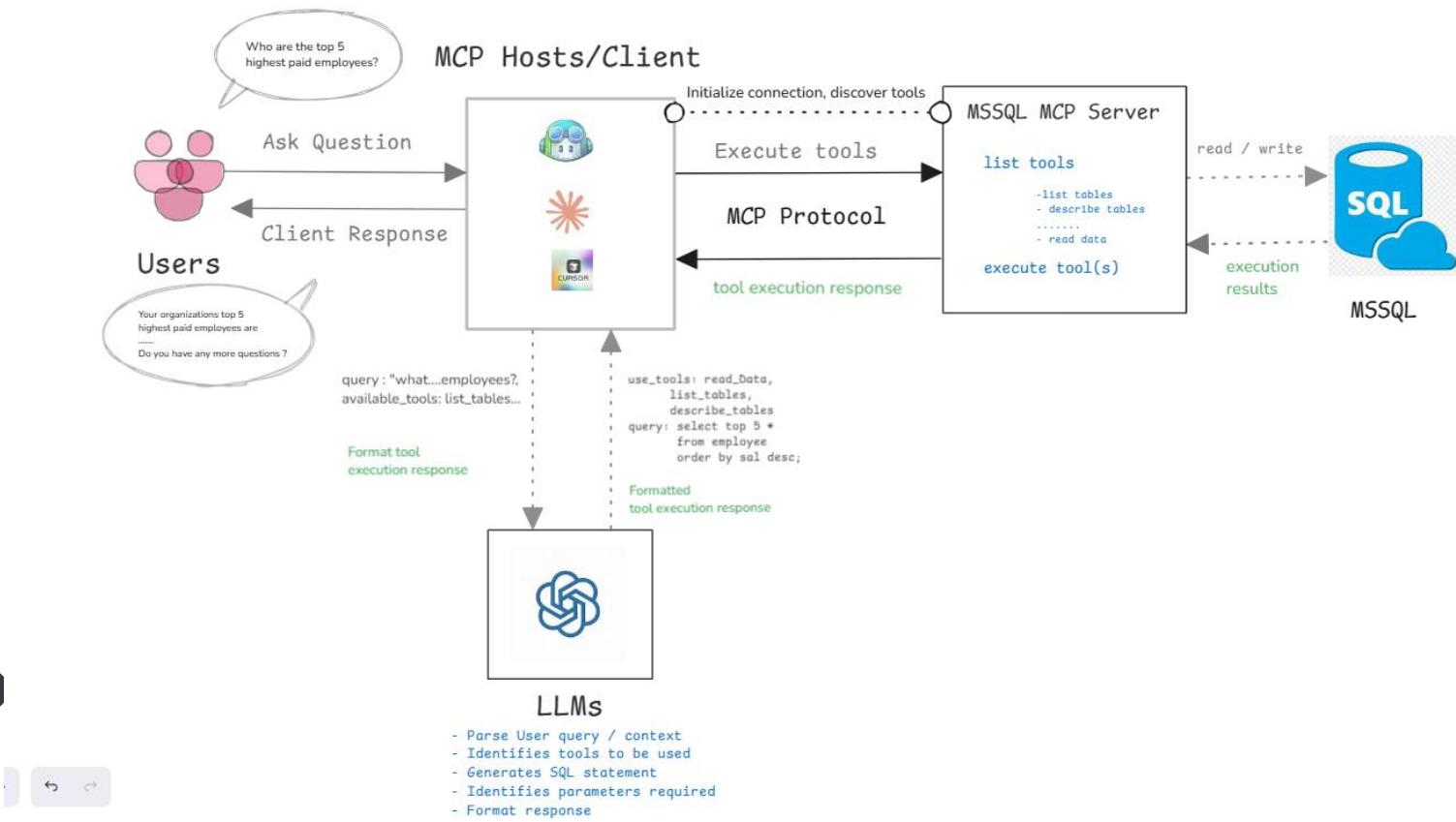


GitHub Copilot

Real world success cases?

- Built T-SQL code based on pattern
- Scanned 82K lines of code to migrate/optimize
 - Documenting process
 - Defining object dependendacies
- Defined job processes
 - Got calls stack in job steps
 - For each stored list of views and tables referenced
 - For each view list of tables referenced
 - For each table referenced list of fields referenced

MSSQL MCP Server





Demo

Useful links

- [Azure Data Studio Retirement Announcement](#)
- [Azure Data Studio is dead, and now?](#)
- [SQL Server Management Studio \(SSMS\) 21 Changes](#)
- [Limitations SQL Server Data Tools, SDK-Style \(Preview\)](#)
- [Feature comparison SQL Projects Tools](#)
- [GitHub MSSqlMcp repo](#)
- [Introducing MSSQL MCP Server \(Preview\)](#)

Q&A



Grazie!

