



#64 PARMA 2024

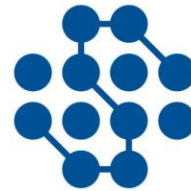
# SQL Database Projects Deep Dive

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**DATA SKILLS**  
UNDERSTANDING THE WORLD



# Riccardo Perico

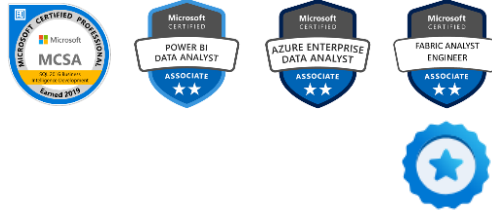
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BI & Power BI Engineer @ **Lucient<sup>1</sup>**  
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+10 years in Microsoft “Data Realm”

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# Who?




# SQL Database Projects



What?





*“A SQL database project is a local **representation of SQL objects** that comprise the schema **for a single database**, such as **tables, stored procedures, or functions**. The development cycle of a SQL database project enables database development to be **integrated into a continuous integration and continuous deployment (CI/CD)** workflows familiar as a development best practice.”*



[What are SQL database projects? - SQL Server | Microsoft Learn](#)

# Developing a database solution

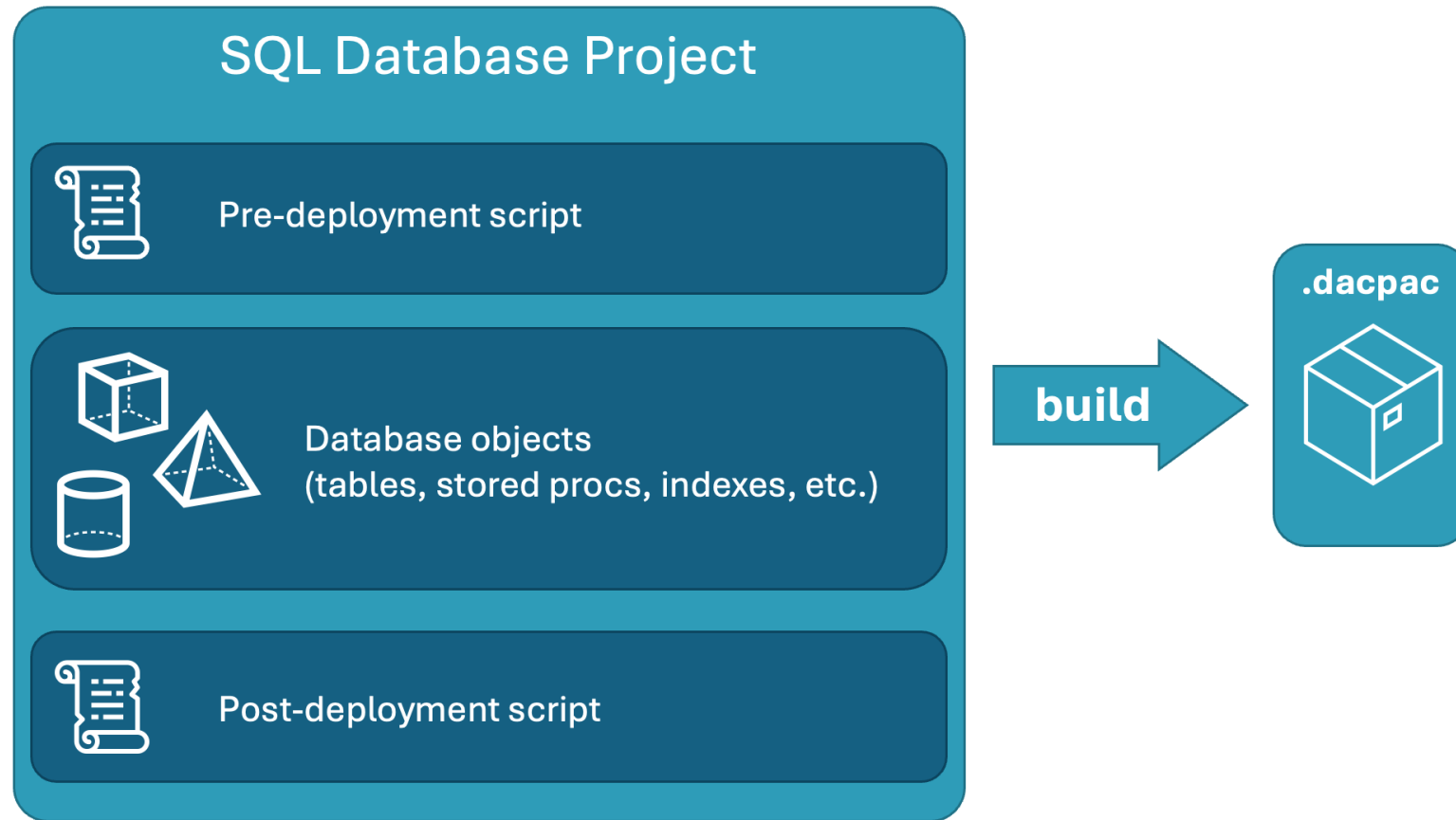


- (optionally) do stuff before db creation
- Create database (filegroups, file, properties)
- Create tables to store data
- Create views to expose data
- Create functions and stored procedures to manage data
- (optionally) do stuff to after db creation





# It is what it is



# Where



# Where SQL is



# When





# Why



# It gives you

- Better development
  - Validation
  - Database solution versioning
  - Improved co-operation
  - Decoupling development and physical db
  - Offline development
- Improved reliability with DB compare and packaged version
- Improved stability with managed CI/CD processes
- Improved segregation of duties

# Demo





```

use [$(DatabaseName)];
go

declare @sender as nvarchar(100) = '';

set @sender =
    case @@env_name
        when N'Test' then N'test@mail.com'
        when N'Prod' then N'prod@mail.com'
        else N'IT_Email@lucient.it'
    end;

MERGE INTO [cfg].[mail_notifications] AS Target
USING (VALUES
    (N'Object Alert missing files'
     , N'Alert message to be sent when miss a product source file'
     , @sender
     , N'AlertTeam@mail.com'
     , NULL
     , N'import source files process alert'
     , N'There're missing input files'
     , NULL
     , 'Normal'
    )
) AS Source ([id_alert],[description],[send_from],[send_to],[send_copy],[mail_subject],[mail_body],[mail_footer],[importance])
ON (Target.[id_alert] = Source.[id_alert])
WHEN NOT MATCHED BY TARGET THEN
    INSERT([id_alert],[description],[send_from],[send_to],[send_copy],[mail_subject],[mail_body],[mail_footer],[importance])
    VALUES(Source.[id_alert],Source.[description],Source.[send_from],Source.[send_to],Source.[send_copy],Source.[mail_subject],Source.[mail_body],Source.[mail_footer],Source.[importance])

```

```
IF NOT EXISTS (  
    SELECT *  
    FROM sys.database_principals  
    WHERE name = 'MEGADITTA\S101113'  
           AND type_desc = 'WINDOWS_USER'  
)  
BEGIN  
    CREATE USER [MEGADITTA\S101113] FOR LOGIN [MEGADITTA \S101113];  
    ALTER ROLE [db_datareader] ADD MEMBER [MEGADITTA\S101113];  
    ALTER ROLE [stp_executor] ADD MEMBER [MEGADITTA\S101113];  
END
```

# Deploy

```
SqlPackage /Action:Publish /SourceFile:"  
/TargetConnectionString:"Server=tcp:  
MultipleActiveResultSets=False;Encry  
/v:ETLUserPassword="asecurestringadd
```

SQL Database ^

Authentication Type \* ⓘ

SQL Server Authentication

Azure SQL Server \* ⓘ

Database \* ⓘ

\$(DatabaseName)

Login \* ⓘ

\$(DatabaseUserName)

Password \* ⓘ

\$(DatabaseUserPassword)

Deployment Package ^

Deploy type \*

SQL DACPAC File

Action \* ⓘ

Publish

DACPAC File \* ⓘ

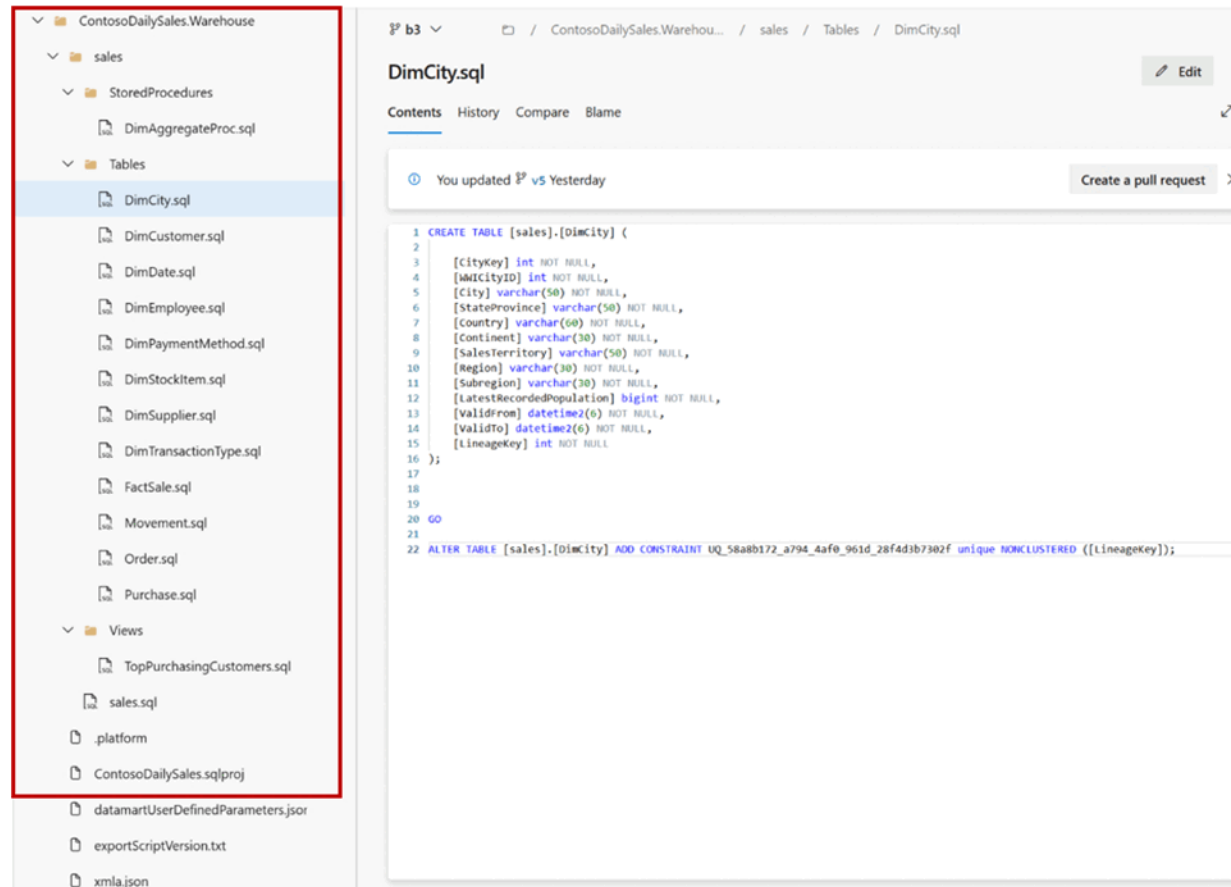
\$(System.DefaultWorkingDirectory)/Database/MyDatabase/MyDatabase.dacpac

Publish Profile ⓘ

\$(System.DefaultWorkingDirectory)/Database/MyDatabase/MyDatabase.publish.xml

```
er ID=sqladmin;Password={your_password};
```

# Even the new kid on the block



# Link

- [What are SQL database projects? - SQL Server | Microsoft Learn](#)
- [Preview release of SDK-style SQL projects in Visual Studio 2022 - Microsoft Community Hub](#)
- [Microsoft.Build.Sql: the next frontier of SQL projects - Microsoft Community Hub](#)
- [SqlPackage - SQL Server | Microsoft Learn](#)

# Riccardo Perico

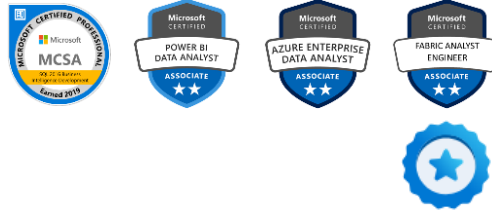
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Thanks!!!

