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# Copilot to the Rescue
## Simplifying DBA Tasks in SSMS 22

*AI-powered guidance inside SSMS • Real demos • Real scenarios • No hype*

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Kelly is a SQL Server Data Platform MVP and data engineer with 20+ years of experience delivering enterprise-scale BI and data platform solutions. I have a Proven track record of driving data strategies, implementing Azure and Power BI environments, and leading cross-functional teams to achieve measurable business outcomes.

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# Abstract

Unlock faster, smarter database management with Github Copilot in SSMS 22.

This session shows how AI-driven guidance simplifies everyday DBA tasks from faster troubleshooting, writing better T-SQL, boosting productivity and reducing errors.

In this session you will see practical demos and learn how Github Copilot becomes your essential assistant.

# Session Agenda

## What we'll cover today .....

| | |
|---|---|
| **01** | **The DBA Pressure Problem** <br> *Why AI matters now* |
| **02** | **Copilot Walkthrough** <br> *What? Why? How?* |
| **03** | **Constitutions & Instructions** <br> *Customize your environment* |
| **04** | **Code Completions & Chat** <br> *How to make this work for you* |
| **05** | **Improve productivity** <br> *Using Copilot as your assistant* |
| **06** | **Key Takeaways** <br> *What to try after this* |

# The Modern DBA Challenge

More pressure. Fewer mistakes. Faster delivery

**3x**

More tasks
expected per DBA

**67%**

DBA errors happen
under time pressure

**40%**

Time lost to
repetitive T-SQL

**GitHub Copilot in SSMS 22 is designed to help DBAs work smarter — not just faster.**

# GitHub Copilot in SSMS 22

## AI meets the DBA's everyday environment

### What is it?

› AI pair programmer built into SSMS 22

› Powered by large language models trained on code & documentation

› Understands your database schema for context-aware suggestions

› Chat, inline completions & natural language → T-SQL

› No external tools

**Constitutions, Instructions & Completions**

**Inline Chat & Explain**

**Context-Aware Suggestions**

**Improve productivity**

# Constitutions, Instructions & Completions

## Constitutions

Set specific behaviour rules
Define coding standards & naming conventions

Copilot respects your team's style
📍 Where: SSMS → Copilot Settings → Instructions

💡 *Set an instruction: 'Always use CTEs instead of subqueries'*

## Instructions

Describe desired output in plain English
Copilot generates schema-aware T-SQL
Works with your actual table & column names
Copilot respects your team's style
📍 Use: Copilot Chat panel in SSMS

💡 *Ask: 'Get top 10 customers by revenue this month'*

## Code Completions

Inline suggestions appear as you type T-SQL
Tab to accept, keep typing to dismiss
Understands partial queries in context
Copilot respects your team's style
📍 Shows: Ghost text in the query editor

💡 *Type: SELECT * FROM Orders WHERE... and watch suggestions*

# Chat, Explain & Refactor

## Understand Unfamiliar Code

**Highlight a legacy stored procedure → Ask Copilot 'What does this do?' → Get plain-English explanation with risk notes.**

## Diagnose Errors

**Paste an error message into Copilot Chat →** Get immediate root-cause analysis and fix — no Stack Overflow needed.

## Refactor T-SQL

**Paste old-style T-SQL → Ask Copilot to modernize using CTEs, window functions & best practices →** Review + accept.

```sql
SELECT   si.StockItemName,
         SUM(ol.Quantity)          AS TotalSold,
         SUM(ol.Quantity * ol.UnitPrice) AS Revenue
FROM     Sales.OrderLines ol
JOIN     Warehouse.StockItems si ON si.StockItemID = ol.StockItemID
JOIN     Sales.Orders o           ON o.OrderID = ol.OrderID
WHERE    o.OrderDate >= DATEADD(YEAR, -1, GETDATE())
  AND    ol.UnitPrice > (
            SELECT AVG(UnitPrice)
            FROM   Sales.OrderLines
         )
GROUP BY si.StockItemName
HAVING   SUM(ol.Quantity) > 100
ORDER BY Revenue DESC;
```

```sql
-- Created by GitHub Copilot in SSMS - review carefully before executing
-- Calculate average price once
DECLARE @AvgPrice DECIMAL(18,2);
DECLARE @StartDate DATE = DATEADD(YEAR, -1, CAST(GETDATE() AS DATE));

SELECT @AvgPrice = AVG(UnitPrice)
FROM Sales.OrderLines;

-- Main query
SELECT   si.StockItemName,
         SUM(ol.Quantity) AS TotalSold,
         SUM(ol.Quantity * ol.UnitPrice) AS Revenue
FROM     Sales.OrderLines ol
JOIN     Warehouse.StockItems si ON si.StockItemID = ol.StockItemID
JOIN     Sales.Orders o ON o.OrderID = ol.OrderID
WHERE    o.OrderDate >= @StartDate
  AND    ol.UnitPrice > @AvgPrice
GROUP BY si.StockItemName
HAVING   SUM(ol.Quantity) > 100
ORDER BY Revenue DESC;
```
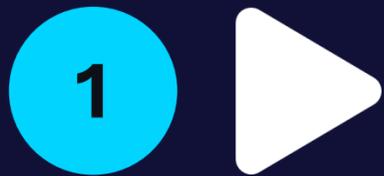
# Execution Plan Analysis

⚠️ *Execution plans are powerful but complex. Identifying costly operators takes experience and time - Copilot helps you get there in seconds.*

**1** ▶

## Run the Query

Execute the slow query with 'Include Actual Execution Plan'

Right-click → Include Actual Execution Plan or press Ctrl+M

**2** 🤖

## Ask Copilot

Open the execution plan as Show XML. Ask Copilot to analyse

Prompt: 'Analyse this execution plan and explain the most costly operators'

**3** 💡

## Get Recommendations

Copilot identifies scans, sorts, key lookups and suggests indexes and re-writes

Copilot Output: Missing index hints, re-write suggestions, stats updates etc.

# Reducing Human Error with AI Assistance

## Copilot as your safety net

### ⚠️ Common Error Patterns

⚠ Missing WHERE clause on UPDATE/DELETE

⚠ Wrong index on wrong table

⚠ Suboptimal data types causing implicit conversions

⚠ Blocking caused by forgotten transactions

⚠ Copy-paste errors in stored procedures

⚠ Not considering execution plan cost before deployment

### 🛡️ How Copilot Catches them

✅ Flags missing WHERE and prompts for confirmation

✅ Analyses query and suggests appropriate index strategy

✅ Recommends explicit casts and optimal data types

✅ Warns when an implicit transaction may cause blocking

✅ Detects structural duplication and suggests refactoring

✅ Generates execution plan summary before you run in prod

# Key Takeaways

## What to try back at work

**Start Today**
GitHub Copilot is in SSMS 22 now — download and enable it. The setup takes minutes.

**Set Instructions**
Invest 5 minutes in custom instructions to align Copilot with your team's standards.

**Use Chat First**
Copilot Chat is the fastest win — paste any query and ask it to explain or improve.

**Decode Execution Plans**
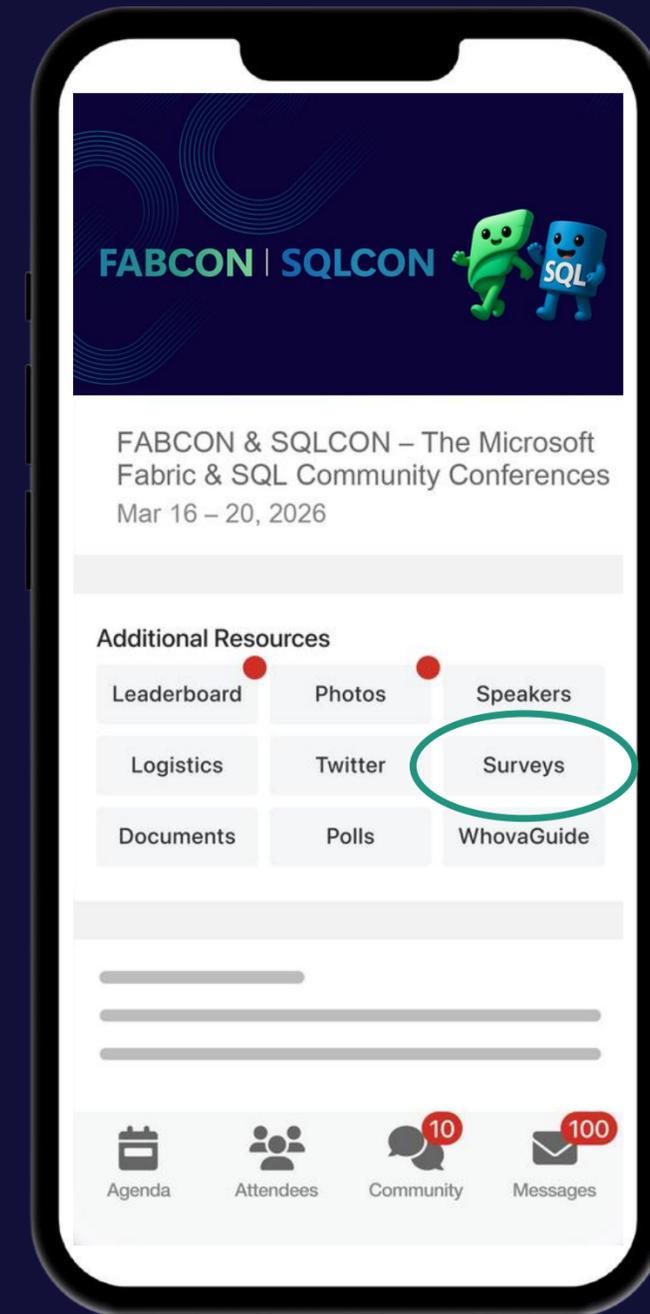Paste execution plan XML into Copilot Chat for instant, actionable analysis.

**It's a Tool, Not a Replacement**
Copilot amplifies your DBA expertise — always review suggestions before deploying.

# Questions

## Thank you for joining us today!

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Warwick Rudd

Kelly Broekstra