

Optimization and Recompilation

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EXECUTE ... WITH RECOMPILE (1)

- Recompiles the plan only for the execution
 - Does not affect the plan in cache
 - Does not place this plan in cache for subsequent executions
- Possibly for “atypical” execution scenarios (limited troubleshooting)
- Excellent for testing
- ★ Verify plans for a variety of test cases

```
EXEC [dbo].[GetMemberInfo] 'Tri pp' WITH RECOMPILE;  
EXEC [dbo].[GetMemberInfo] 'T%' WITH RECOMPILE;  
EXEC [dbo].[GetMemberInfo] '%T%' WITH RECOMPILE;
```

- Do the execution plans match?
 - Yes: create the procedure normally
 - No: determine what should be recompiled

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EXECUTE ... WITH RECOMPILE (2)

- Common use for EXECUTE <procedure> WITH RECOMPILE is **TESTING**
 - Must test directly
 - Cannot use this for sub-procedures
- Get a wide range of possible execution scenarios together (don't you already do this for testing the procedure's code?)
- In SSMS: execute ALL of them WITH RECOMPILE
 - Make sure to turn on Include Actual Execution Plan
 - Turn on I/O tracking using SET STATISTICS IO ON
- Check out the execution plan patterns:
 - If there's only one plan for all of the different executions then this procedure is not "parameter sensitive" and will not be prone to parameter sniffing problems so create the procedure normally
 - If there's more than one pattern then you have to determine what should be recompiled, and how

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Statement-Level Recompilation

- **From SQL Server 2005 onward: “inline” recompilation for statements**
 - **OPTION (RECOMPILE)**
 - Excellent when parameters cause the execution plan to widely vary
 - Bad because EVERY execution will recompile – but only for the statements
 - **OPTION (OPTIMIZE FOR (@variable = literal, ...))**
 - Excellent when large majority of executions generate the same optimization time
 - You don’t care that the minority may run slower with a less than optimal plan?
 - **From SQL Server 2008 onward: OPTION (OPTIMIZE FOR UNKNOWN)**
 - Use the “all density” (average) instead of the histogram
- **Other options for more granular recompilation**
 - Statement-level: dynamic string execution
 - Block-level: modularization (sub-procedures)

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