

Hang in  
there...we're  
starting soon



# BIML-UP!!

## How I use BIML to speed up SSIS development

by Martin Schoombee





# About Me

“I help people make sense  
of their data”

My blog: [martinschoombee.com](http://martinschoombee.com)

My company: [28twelve.consulting](http://28twelve.consulting)

Tweet me: [@MartinSchoombee](https://twitter.com/MartinSchoombee)

GitHub Repo:

<https://github.com/mschoombee/Presentations/wiki/Presentations>



# Agenda

- What is BIML
- Reasons to use BIML
- BIML basics
- How I use BIML

A black and white close-up photograph of a young boy's face. He has a wide-eyed, surprised expression with his mouth slightly open, showing his teeth. The text "BIML Who?" is overlaid in the center of his face.

**BIML Who?**

# Markup Language

```
<html>  
  <title>Hello World!</title>  
  <body>  
    <p>This is a paragraph...</p>  
  </body>  
</html>
```

# Markup Language - Tags

<html>

<title>Hello World!</title>

<body>

<p>This is a paragraph...</p>

</body>

</html>

# Markup Language – Human Readable

```
<html>  
  <title>Hello World!</title>  
  <body>  
    <p>This is a paragraph...</p>  
  </body>  
</html>
```



# Markup Language - Properties

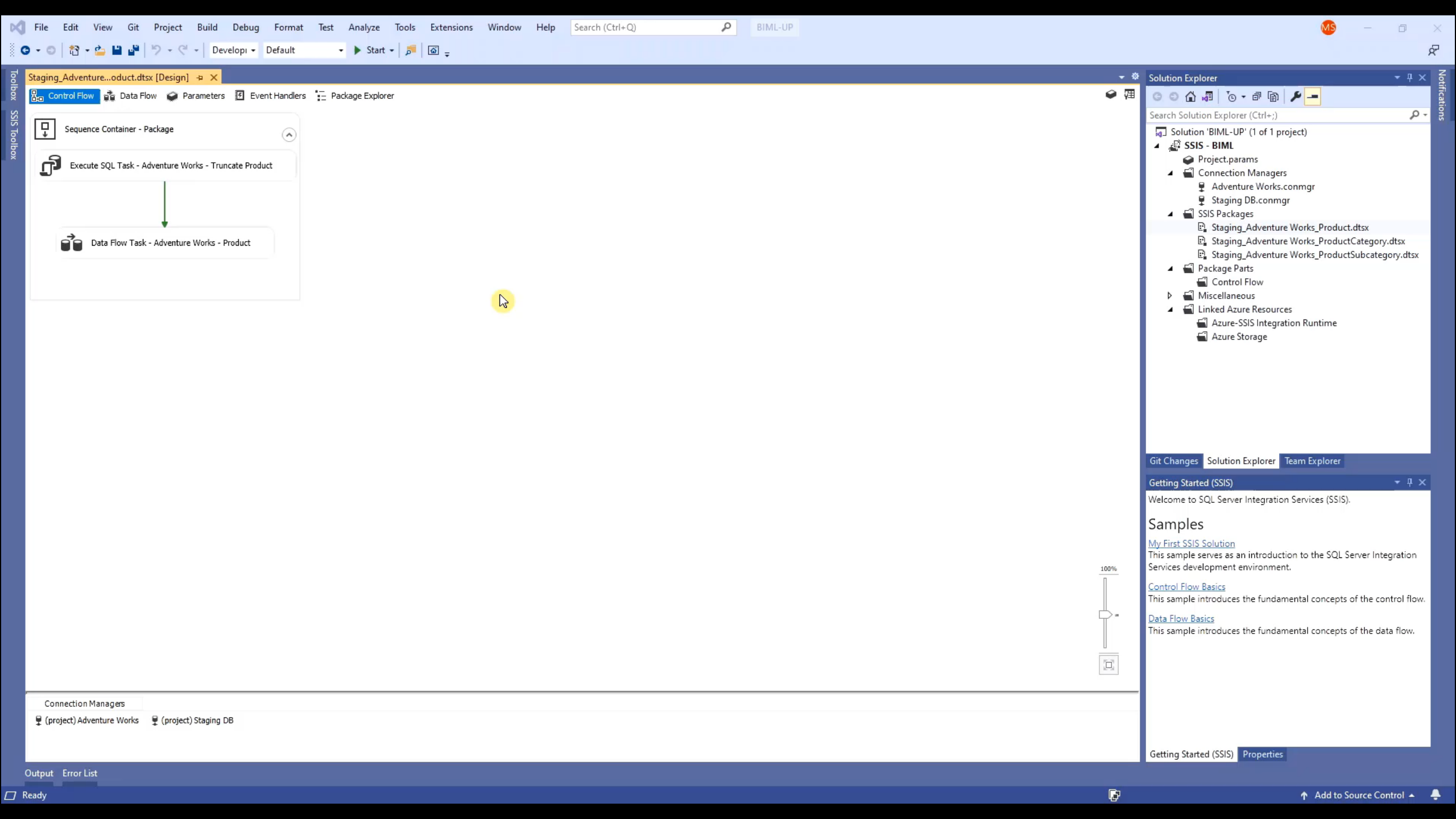
```
<html>  
  <title style="color:blue;">Hello World!</title>  
  <body>  
    <p>This is a paragraph...</p>  
  </body>  
</html>
```

# BIML

```
<Biml xmlns="http://schemas.varigence.com/biml.xsd">  
  <Packages>  
    <Package Name="Load Some Data">  
      ...  
    </Package>  
  </Packages>  
</Biml>
```

A light brown dog, possibly a pit bull mix, is standing on its hind legs. Its right front paw is raised high, touching the white door behind it. The dog is looking up at the door with its head tilted back. The background is a plain white door with a visible handle on the right side. The floor appears to be a light-colored, textured surface. The overall image has a slightly muted, artistic feel.

# Why BIML?



File

Edit

View

Git

Project

Build

Debug

Format

Test

Analyze

Tools

Extensions

Window

Help

Search (Ctrl+Q)

BIML-UP

MS

Staging\_Adventure Works\_Product.biml

1

<#@ template language="C#" tier="2"#>

2

<Biml xmlns="http://schemas.varigence.com/biml.xsd">

3

<Connections>

4

<OleDbConnection Name="Adventure Works" CreateInProject="true" ConnectionString="Data Source=localhost;Initial Catalog=AdventureWorks2019;Provider=SQLOLEDB.1;Integrated Security=SSPI;Auto T

5

<OleDbConnection Name="Staging DB" CreateInProject="true" ConnectionString="Data Source=localhost;Initial Catalog=Staging;Provider=SQLOLEDB.1;Integrated Security=SSPI;Auto T

6

</Connections>

7

8

<Packages>

9

10

<Package Name="Staging\_Adventure Works\_Product" DelayValidation="true" ProtectionLevel="DontSaveSensitive">

11

<Tasks>

12

13

<Container Name="Sequence Container - Package" DelayValidation="true" ConstraintMode="Linear">

14

<Tasks>

15

16

<ExecuteSQL Name="Execute SQL Task - Adventure Works - Truncate Product" ConnectionName="Staging DB" DelayValidation="true" ResultSet="None">

17

<DirectInput>truncate table [Adventure Works].[Product];</DirectInput>

18

</ExecuteSQL>

19

20

<Dataflow Name="Data Flow Task - Adventure Works - Product" DefaultBufferMaxRows="50000" DefaultBufferSize="1048576000" DelayValidation="true">

21

22

<Transformations>

23

24

<OleDbSource Name="OLE DB Source - Adventure Works - Product" ConnectionName="Adventure Works" ValidateExternalMetadata="false">

25

<DirectInput>

26

select prd.[ProductID]

27

, convert(varchar(50), prd.[Name]) as [Name]

28

, convert(varchar(50), prd.[ProductNumber]) as [ProductNumber]

29

, convert(varchar(20), prd.[Color]) as [Color]

30

, prd.[StandardCost]

31

, convert(varchar(5), prd.[ProductLine]) as [ProductLine]

32

, convert(varchar(5), prd.[Class]) as [Class]

33

, convert(varchar(5), prd.[Style]) as [Style]

34

, prd.[ProductSubcategoryID]

35

, prd.[ModifiedDate]

36

37

from [Production].[Product] prd

38

;

39

</DirectInput>

40

</OleDbSource>

41

42

<OleDbDestination Name="OLE DB Destination - Staging DB - Product" ConnectionName="Staging DB" BatchSize="50000" MaximumInsertCommitSize="50000">

43

<ExternalTableOutput Table="[AdventureWorks].[Product]" />

44

</OleDbDestination>

45

46

</Transformations>

47

48

</Dataflow>

49

50

</Tasks>

51

Show Preview

Preview is up-to-date. Update

Output

Error List

Item(s) Saved

Add to Source Control

Solution Explorer

Search Solution Explorer (Ctrl+;)

Solution 'BIML-UP' (1 of 1 project)

SSIS - BIML

Project.params

Connection Managers

Adventure Works.conmgr

Staging DB.conmgr

SSIS Packages

Staging\_Adventure Works\_Product.dtsx

Staging\_Adventure Works\_ProductCategory.dtsx

Staging\_Adventure Works\_ProductSubcategory.dtsx

Package Parts

Control Flow

Miscellaneous

Connections.biml

Staging\_Adventure Works\_ProductSubcategory.biml

Staging\_Adventure Works\_Product.biml

Staging\_Adventure Works\_ProductCategory.biml

Linked Azure Resources

Azure-SSIS Integration Runtime

Azure Storage

Git Changes

Solution Explorer

Team Explorer

Getting Started (SSIS)

Welcome to SQL Server Integration Services (SSIS).

Samples

My First SSIS Solution

This sample serves as an introduction to the SQL Server Integration Services development environment.

Control Flow Basics

This sample introduces the fundamental concepts of the control flow.

Data Flow Basics

This sample introduces the fundamental concepts of the data flow.

Getting Started (SSIS)

Properties



# Reasons to BIML



Photo by [Clem Onojeghuo](#) on [Unsplash](#)



# Reasons to BIML

1. Save your mouse...and your sanity!!

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2. Enforce coding standards

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3. Source control

# Reasons to BIML

1. Save your mouse...and your sanity!!
2. Enforce coding standards
3. Source control
4. Automation



# BIML Basics

A hand holds a white, slightly weathered picture frame in the foreground. The frame is positioned to capture a view of a coastal landscape. The background features a steep, grassy cliff on the left, a sandy beach, and the ocean under a cloudy sky. The text 'Build a Framework' is overlaid in the center in a large, white, sans-serif font.

# Build a Framework



# A typical ETL framework

## 1. Connect to data source



# A typical ETL framework

1. Connect to data source
2. Extract metadata (tables, fields, etc.)





# A typical ETL framework

1. Connect to data source
2. Extract metadata (tables, fields, etc.)
3. Use BIML to generate staging packages



A close-up photograph of a man with long, curly brown hair and a full beard. He is looking upwards and to the left with a wide-eyed, open-mouthed expression, as if in awe or shouting. He is holding a thin, light-colored stick or branch in his right hand, which is raised towards the top left of the frame. The background is a soft-focus outdoor scene with green foliage and a bright sky. The overall tone is warm and natural.

I'm not “most people”...



# Why am I different?

1. Don't want all source tables
2. Want a subset of attributes
3. May need to change data types





Ok, I'm not that different



# **My ETL development process**

1. Identify source system(s)

# **My ETL development process**

1. Identify source system(s)
2. Identify source attributes

# **My ETL development process**

1. Identify source system(s)
2. Identify source attributes
3. **Create staging tables**

# **My ETL development process**

1. Identify source system(s)
2. Identify source attributes
3. Create staging tables
4. **Develop staging SSIS packages**

# My ETL development process

1. Identify source system(s)
2. Identify source attributes
3. Create staging tables
4. Develop staging SSIS packages
5. Oops, I forgot something!

# My ETL development process

1. Identify source system(s)
2. Identify source attributes
3. Create staging tables
4. Develop staging SSIS packages
5. Oops, I forgot something!
6. Back to step 2 (x 10)...



# My ETL development process

...

24. Develop fact table procedures

25. Oops, I forgot something!

# My ETL development process

...

24. Develop fact table procedures

25. Oops, I forgot something!

26. Back to step 2 (x 20)...

# My ETL development process

...

104. Show new report to end user

# My ETL development process

...

104. Show new report to end user

105. User wants another measure

# My ETL development process

...

104. Show new report to end user

105. User wants another measure

106. Oops, I need a new source attribute!

# My ETL development process

...

104. Show new report to end user

105. User wants another measure

106. Oops, I need a new source attribute!

**107. Back to step 2 (x 100)**





# In a perfect world...

- Script tables





# In a perfect world...

- Script tables
- Generate staging packages



# In a perfect world...

- Script tables
- Generate staging packages
- **Generate parent packages**





# In a perfect world...

- Script tables
- Generate staging packages
- Generate parent packages
- **Reduce impact/risk**



# In a perfect world...

- Script tables
- Generate staging packages
- Generate parent packages
- Reduce impact/risk
- **Speed up development**

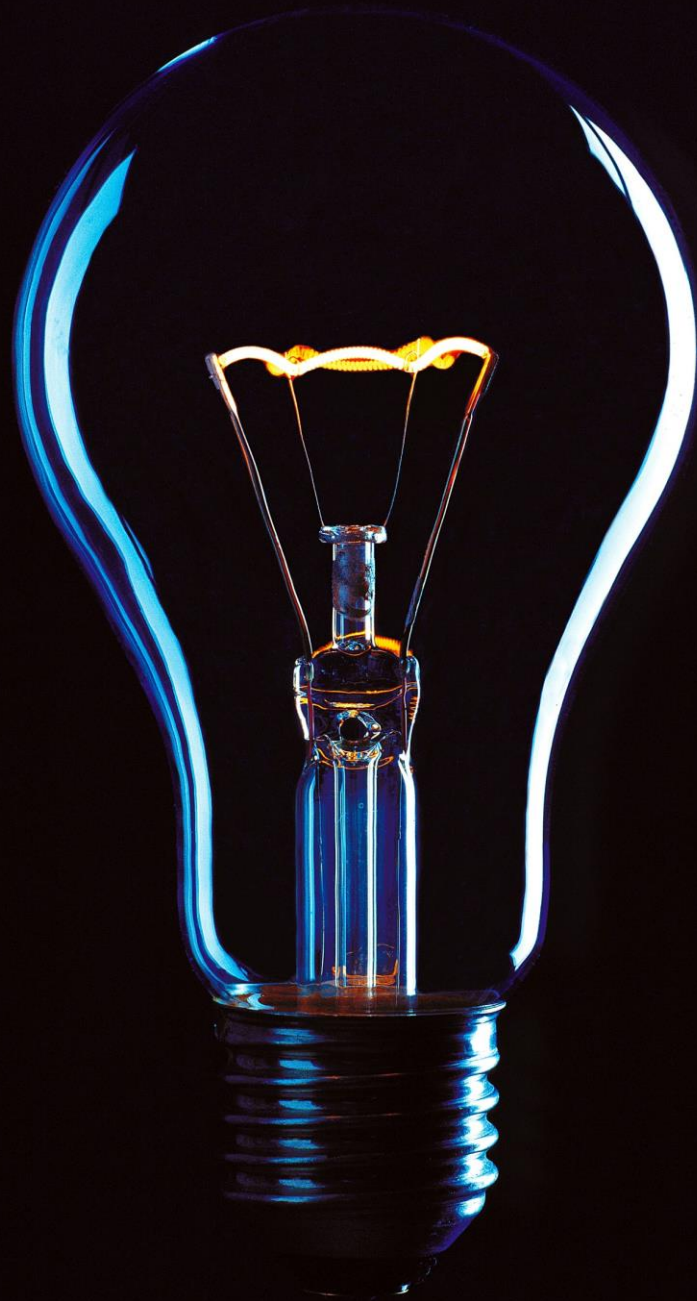




# In a perfect world...

- Script tables
- Generate staging packages
- Generate parent packages
- Reduce impact/risk
- Speed up development
- **Assist with documentation**







**Demo time...**



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<https://github.com/mschoombee/Presentations/wiki/Presentations>

