

TP5 - Business Intelligence

SSIS – Gestionnaires d'événements/ Déploiement des Packages SSIS

Master : Traitement intelligent des systèmes

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Gestionnaires d'événements

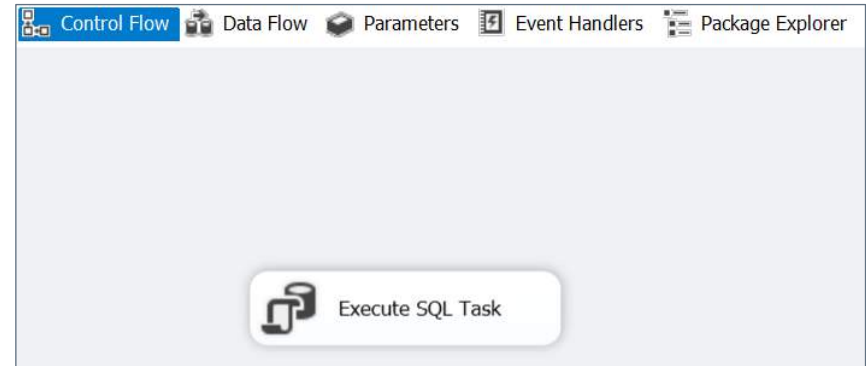
Les gestionnaires d'événements peuvent réaliser des tâches comme les suivantes :

- nettoyer l'emplacement de stockage des données temporaires une fois l'exécution d'un package ou d'une tâche terminée ;
- récupérer les informations système de manière à évaluer la disponibilité des ressources avant exécution d'un package ;
- actualiser les données d'une table en cas d'échec d'une recherche dans une table de référence ;
- envoyer un message électronique lorsqu'une erreur ou un avertissement se produit ou lorsqu'une tâche échoue.

1- Créer la table **CustomerDuplicate** :

```
CREATE TABLE [Sales].[CustomerDuplicate](
    [CustomerID] [int] NOT NULL,
    [PersonID] [int],
    [StoreID] [int],
    [TerritoryID] [int],
    [AccountNumber] [VARCHAR],
    [rowguid] [uniqueidentifier] ,
    [ModifiedDate] [datetime]);
```

2- Créer un nouveau package **EventHandler** et définir le control flow comme suit:



INSERT INTO [sales].[CustomerDuplicate]
SELECT * FROM [sales].[Customer]

3- Configurer la tâche **Execute SQL Task**

```
INSERT INTO [sales].[CustomerDuplicate]  
SELECT * FROM [sales].[Customer]
```

Execute SQL Task Editor

Configure the properties required to run SQL statements and stored procedures using the selected connection.

General

Parameter Mapping
Result Set
Expressions

General

Name	Execute SQL Task
Description	Execute SQL Task

Options

TimeOut	0
CodePage	1252
TypeConversionMode	Allowed

Result Set

ResultSet	None
-----------	------

SQL Statement

ConnectionType	OLE DB
Connection	LocalHost.AdventureWorks2019
SQLSourceType	Direct input
SQLStatement	INSERT INTO [sales].[CustomerDuplicate]SEL
IsQueryStoredProcedure	False
BypassPrepare	True

Name

Specifies the name of the task.

Browse... Build Query... Parse Query

OK Cancel Help

1. *OnPreExecute*

4- Supprimer toutes les données de la table **customerDuplicate** avant l'exécution de la tâche

Executable:

Execute SQL Task

Event handler:

OnPreExecute

Delete

Execute SQL Task

Execute SQL Task Editor

Configure the properties required to run SQL statements and stored procedures using the selected connection.

General
Parameter Mapping
Result Set
Expressions

General	
Name	Execute SQL Task
Description	Execute SQL Task
Options	
TimeOut	0
CodePage	1252
TypeConversionMode	Allowed
Result Set	
ResultSet	None
SQL Statement	
ConnectionType	OLE DB
Connection	LocalHost.AdventureWorks2019
SQLSourceType	Direct input
SQLStatement	TRUNCATE TABLE [sales].[customerduplicate]
IsQueryStoredProcedure	False
BypassPrepare	True

Name
Specifies the name of the task.


Browse... Build Query... Parse Query

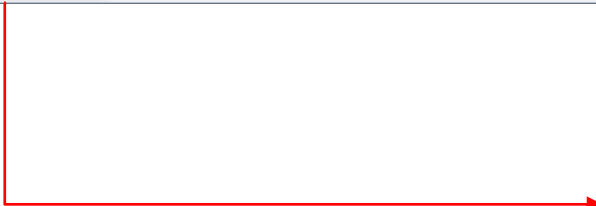
OK Cancel Help

2. *OnPostExecute*

5- Afficher un message une fois le chargement de données dans la table **customerDuplicate** est terminé

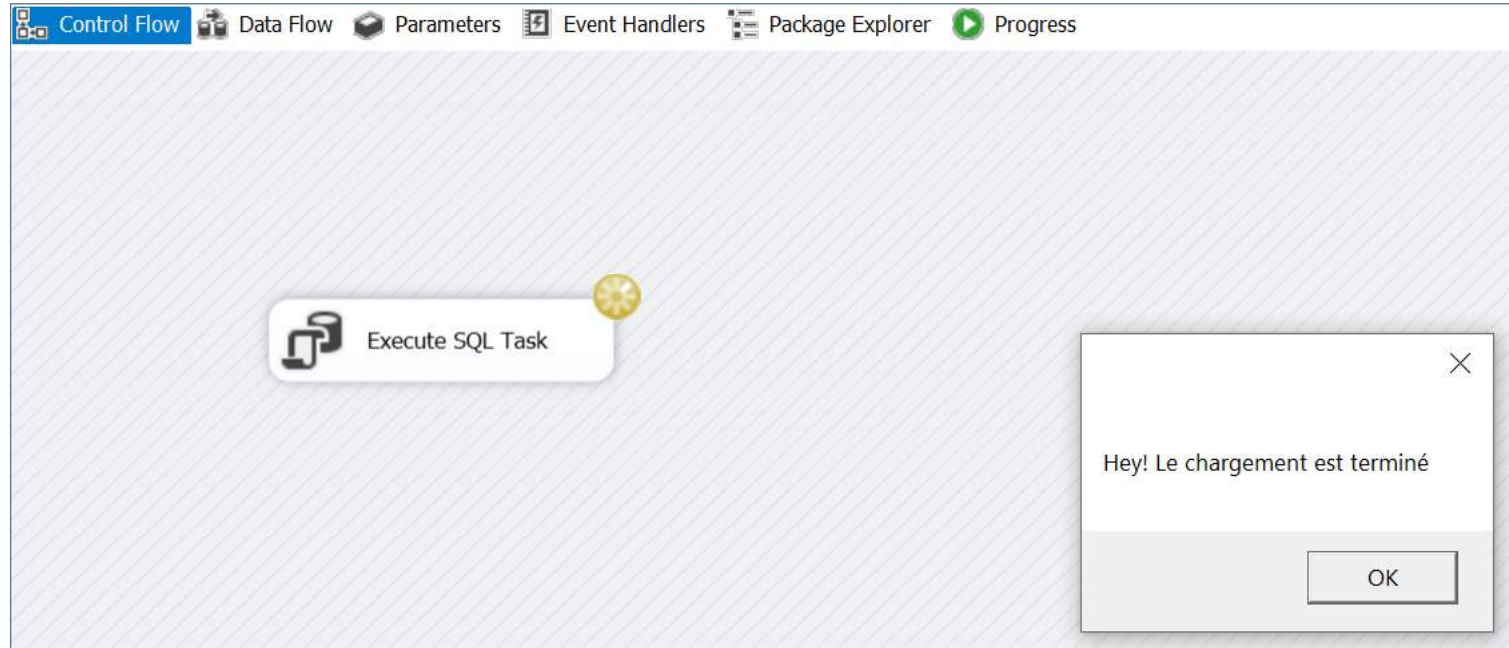
Executable: Execute SQL Task Event handler: OnPostExecute Delete

 Script Task



```
ScriptMain.cs Properties Output
ST_5142f51b4098489e916251d31e38be34 ST_5142f51b4098489e916251d31e38be34.Script Main()
53 Help: Firing Integration Services events from a script
66
67 Help: Using Integration Services connection managers in a script
84
85
86 /// <summary>
87 /// This method is called when this script task executes in the control flow.
88 /// Before returning from this method, set the value of Dts.TaskResult to indicate success or failure
89 /// To open Help, press F1.
90 /// </summary>
91 D references
92 public void Main()
93 {
94     // TODO: Add your code here
95     MessageBox.Show("Hey! Le chargement est terminé");
96     Dts.TaskResult = (int)ScriptResults.Success;
97 }
98 ScriptResults declaration
111 }
112
113 }
```

2. *OnPostExecute*

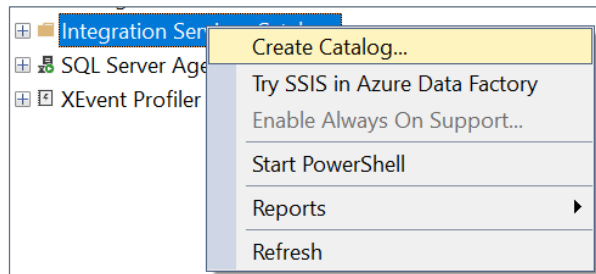


Déploiement des packages SSIS

| 1. *Déployer un Projet/ Package SSIS*

- L'exécution du package SSIS est possible via Visual Studio. Cependant, un déploiement du package sur le serveur est plus avantageux, en particulier pour automatiser l'exécution.

1.1 Créer un Catalogue Integration Services



Catalog Creation Wizard

Ready

Select a page

General

Script Help

To create and use the catalog, CLR integration must be enabled on the current SQL Server instance.

☒ Enable CLR Integration

☒ Enable automatic execution of Integration Services stored procedure at SQL Server startup.

Name of the catalog database:

SSISDB

The catalog protects data using encryption. A key is needed for this encryption. Enter a password to protect the encryption key, and save the password in a secure location.

Password:

Retype Password:

You can manage the encryption key by creating a backup. If you migrate or move the Integration Services catalog to another SQL Server instance, you can restore the key to regain access to encrypted content.

☐ Enable this server as SSIS scale out master

Cannot enable Scale Out in this server, please check whether Scale Out Master is installed or you have enough permission.

Connection

LAPTOP-K0GUJQ0M
[GMXVZZ00Y8784]

[View connection properties](#)

Progress

Ready

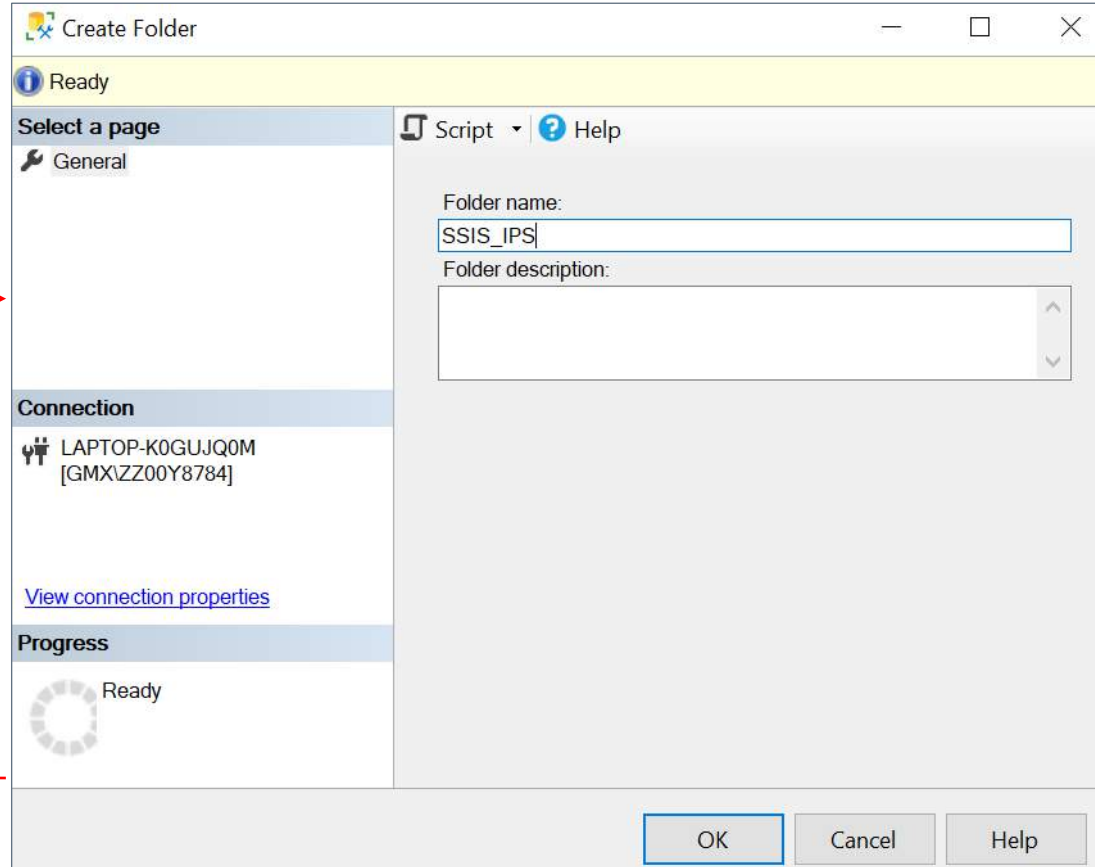
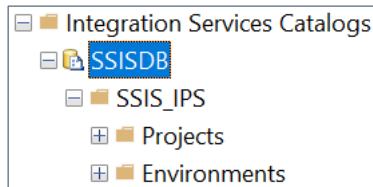
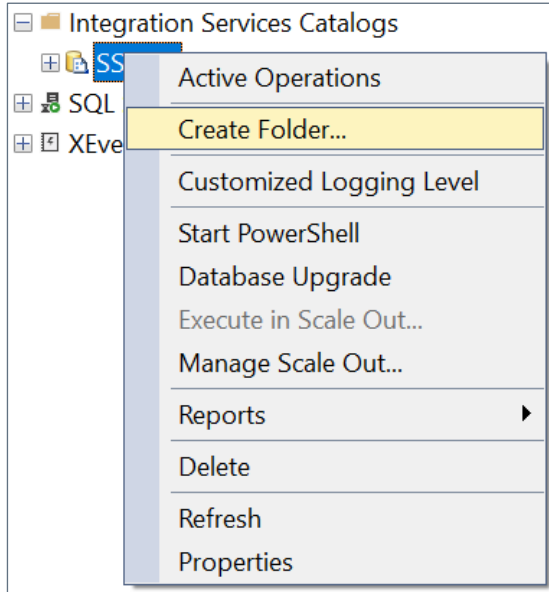
Lift & Shift Your ETL Workload with SSIS in ADF

If you have not created an SSIS Integration Runtime (IR) in Azure Data Factory (ADF) before, you can create one to lift & shift your ETL workload.

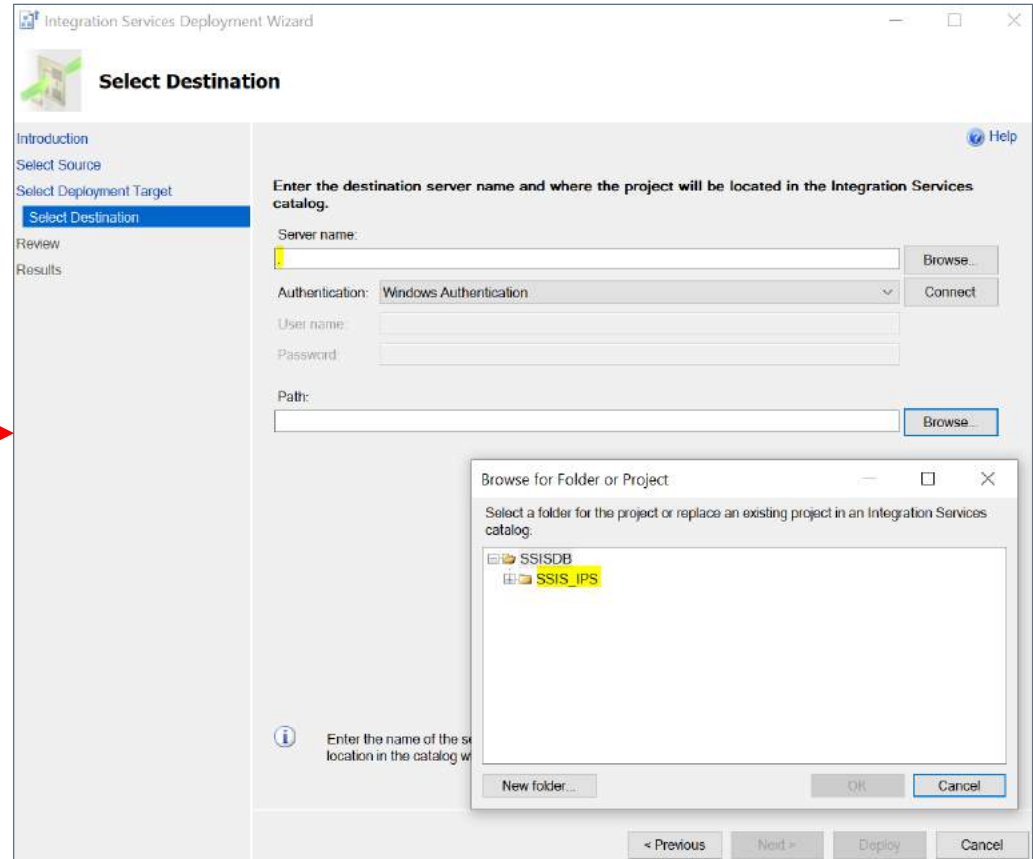
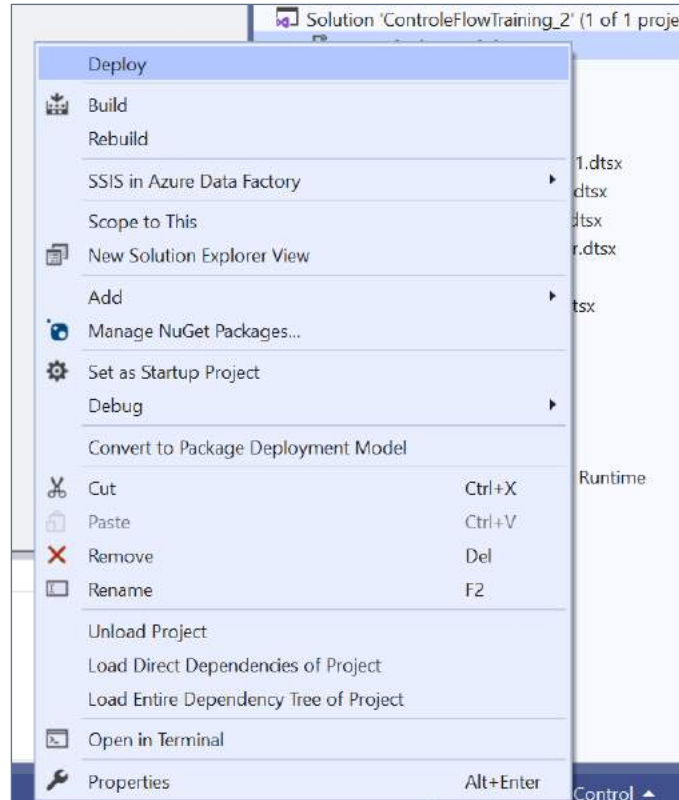
You can then deploy existing SSIS projects into SSISDB hosted by your Azure SQL Database server/Managed Instance and run the deployed SSIS packages on your SSIS IR.

OK Cancel Help

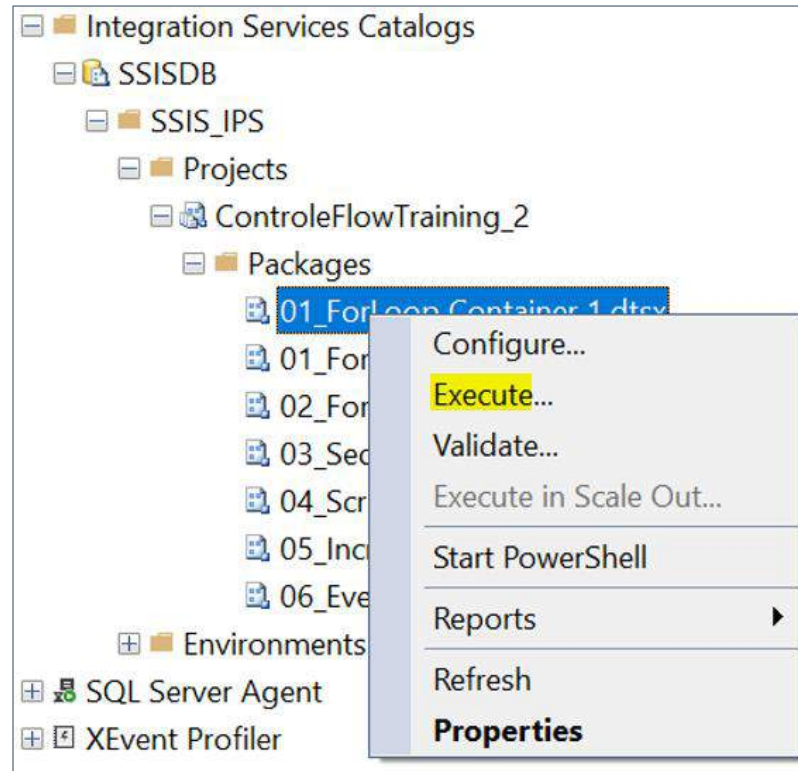
1.2 Créer un Dossier dans le catalogue



1.3 Déployer le projet



2. Exécuter un package manuellement



2. Exécuter un package manuellement

Overview

on [REDACTED] at 2022-01-21 22:10:06

This report provides an overview of the package tasks and parameters, including execution or validation information.

[View Messages](#)


[View Performance](#)

Execution Information

Operation ID	2
Package	SSIS_IPS\ControleFlowTraining_2\01_ForLoop Container 1.dtsx
Environment	-
Status	Running
Machine	[REDACTED]

Duration (sec)	12,714
Start Time	2022-01-21 22:09:53
End Time	
Caller	[REDACTED]

Execution Overview

 **Filter:** Result: All; (3 more)

Result	Duration (sec)	Package Name	Task Name	Execution Path
--------	----------------	--------------	-----------	----------------

Parameters Used

Name	Value	Data Type
CALLER_INFO		String
DUMP_EVENT_CODE	0	String
DUMP_ON_ERROR	False	Boolean
DUMP_ON_EVENT	False	Boolean

2. Exécuter un package manuellement


[View Performance](#)

Execution Information

Operation ID	2
Package	SSIS_IPS\ControleFlowTraining_2\01_ForLoop Container 1.dtsx
Environment	-
Status	Failed
Machine	

Duration (sec)	15,782
Start Time	2022-01-21 22:09:53
End Time	2022-01-21 22:10:09
Caller	

Execution Overview

 Filter: Result: All; (3 more)

Result	Duration (sec)	Package Name	Task Name	Execution Path
Failed	9,859	01_ForLoop Container 1.dtsx	Package1	\Package1
Failed	9,703	01_ForLoop Container 1.dtsx	For Loop Container	\Package1\For Loop Container
Failed	9,703	01_ForLoop Container 1.dtsx	Execute SQL Task	\Package1\For Loop Container [1]\Execute SQL Task

Parameters Used


Name	Value	Data Type
CALLER_INFO		String
DUMP_EVENT_CODE	0	String
DUMP_ON_ERROR	False	Boolean
DUMP_ON_EVENT	False	Boolean
LOGGING_LEVEL	1	Int32
SYNCHRONIZED	False	Boolean

2. Exécuter un package manuellement

The screenshot displays the SQL Server Enterprise Manager interface. On the left, the 'Integration Services Catalogs' tree is expanded to 'SSISDB' > 'SSIS_IPS' > 'Projects' > 'ControleFlowTraining_2' > 'Packages'. The package '01_ForLoop Container 1.dtsx' is selected, and its context menu is open. The 'Reports' option is highlighted, and its submenu is also open, showing 'Standard Reports' and 'Custom Reports...'. The 'Standard Reports' submenu is further expanded, showing 'All Executions' and 'All Validations'. On the right, the 'Execution Overview' pane shows a table with two failed executions.

Result	Duration (sec)	Package
Failed	9,859	01_ForLoop Container 1.dtsx
Failed	9,703	01_ForLoop Container 1.dtsx

2. Exécuter un package manuellement

 **Filter:** Start time range: 2022-01-15 - 2022-01-21; Status: All; (4 more)

Execution Information


1
Failed


0
Running

0
Succeeded

0
Others

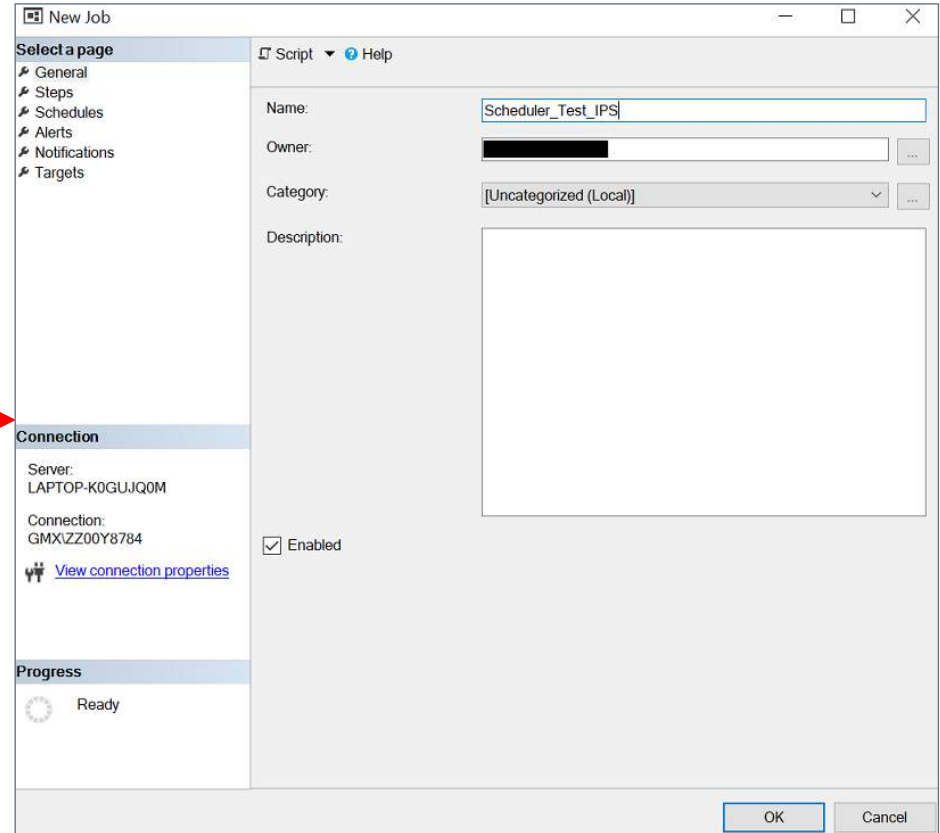
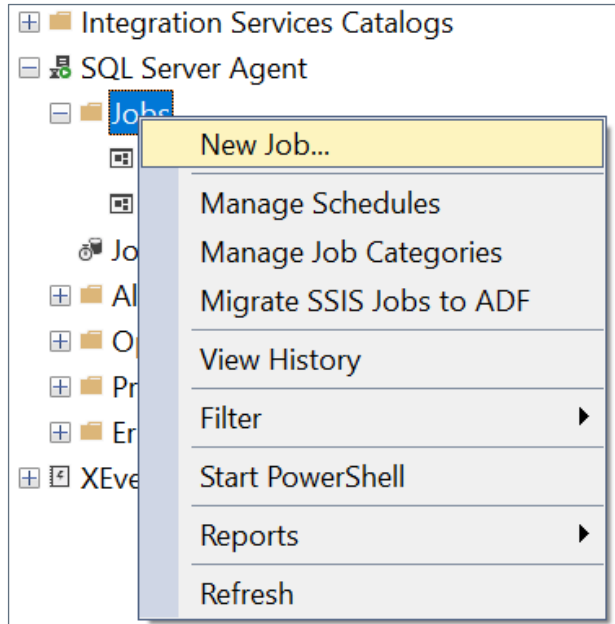
ID	Status	Report	Folder Name	Project Name	Package Name	Start Time
2	Failed	Overview All Messages Execution Performance	SSIS_IPS	ControleFlowTraining_2	01_ForLoop Container 1.dtsx	2022-01-21 22:09:53



 **Error Messages**

Message Type	Action	Message Time	Message	Message Source Name	Subcomponent Name
OnError	View Context	2022-01-21 22:10:08	Execute SQL Task:Error: Executing the query "INSERT INTO [dbo].[SSISForLoopExample] ..." failed with the following error: "No value given for one or more required parameters.". Possible failure reasons: Problems with the query, "ResultSet" property not set correctly, parameters not set correctly, or connection not established correctly.	Execute SQL Task	

3. Planifier des packages SSIS avec l'agent SQL Server



3. Planifier des packages SSIS avec l'agent SQL Server

New Job Step

Select a page: General, Advanced

Script Help

Step name: Execute_ForLoop_Package

Type: SQL Server Integration Services Package

Run as: SQL Server Agent Service Account

Package Configuration

Package source: SSIS Catalog

Server:

Log on to the server

☒ Use Windows Authentication

☐ Use SQL Server Authentication

User name:

Password:

Package: (SSISDB\SSIS_IPS\ControlFlowTraining_2\01_ForLoop Container.dtsx)

Connection

Server: LAPTOP-K0GUJJQ0M

Connection: GMXZZ00Y8784

View connection properties

Progress

Ready

Previous Next

OK Cancel

Job Properties - Scheduler_Test_IPS

Select a page: General, Steps, Schedules, Alerts, Notifications, Targets

Job step list:

Step	Name	Type	On Success	On Failure
1	Execute_ForLoop_Package	SQL Serve...	Go to the n...	Quit the job...

Connection

Server: LAPTOP-K0GUJJQ0M

Connection: GMXZZ00Y8784

View connection properties

Progress

Ready

Move step: Start step: 1.Execute_ForLoop_Package

New... Insert... Edit Delete

OK Cancel

3. Planifier des packages SSIS avec l'agent SQL Server

Job Schedule Properties - Every 1 min

Name: Jobs in Schedule

Schedule type: ☒ Enabled

One-time occurrence

Date: Time:

Frequency

Occurs:

Recur every: day(s)

Daily frequency

☐ Occurs once at:

☒ Occurs every: minute(s) Starting at: Ending at:

Duration

Start date: ☐ End date: ☒ No end date:

Summary

Description:

Job Properties - Scheduler_Test_IPS

Select a page

- General
- Steps
- Schedules
- Alerts
- Notifications
- Targets

Script Help

Schedule list:

ID	Name	Enab...	Description	J...
New	Every 1 min	Yes	Occurs every day every 1 minute(s) between 00:00...	

Connection

Server: LAPTOP-K0GUJQ0M

Connection: GMXZZ00Y8784

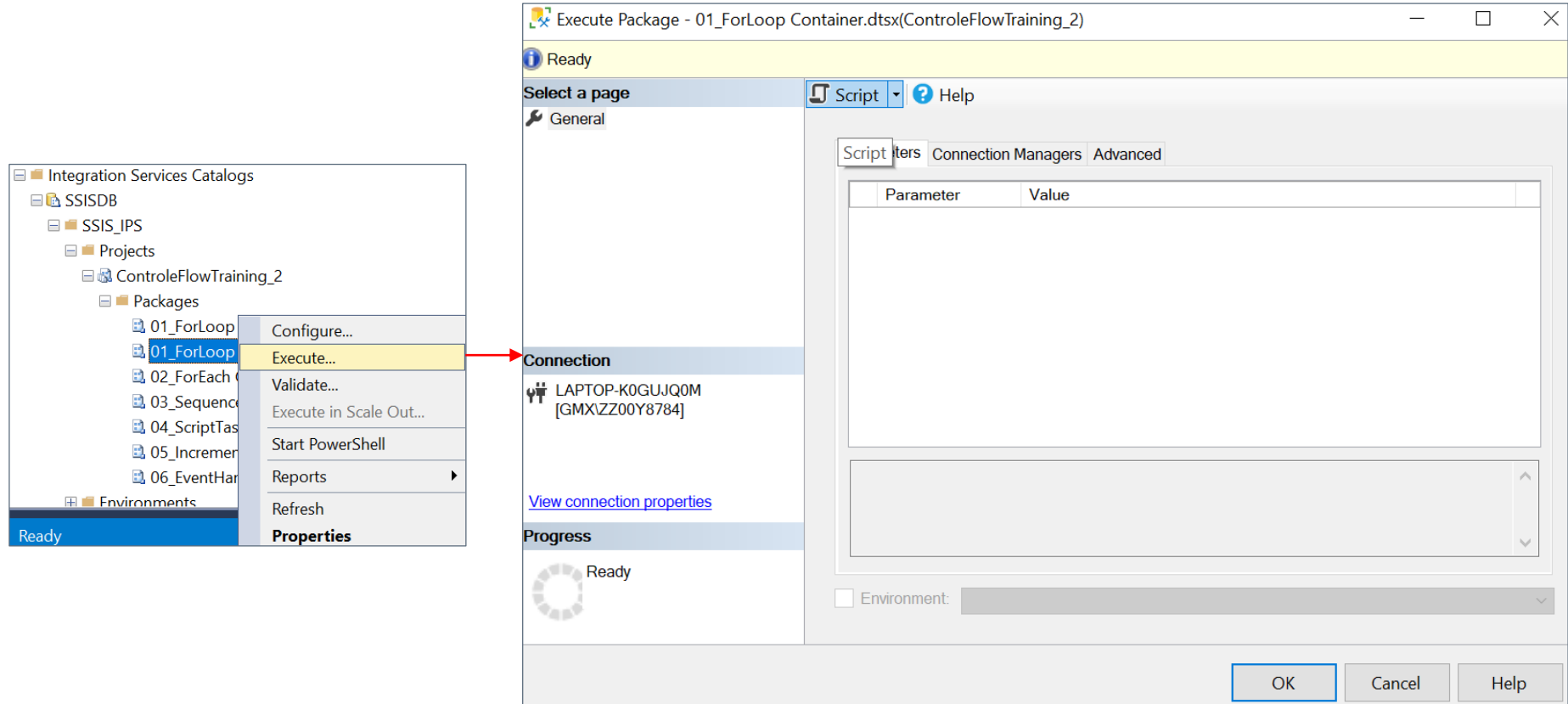
[View connection properties](#)

Progress

3. Planifier des packages SSIS avec l'agent SQL Server

Select logs		Load Log Export Refresh Filter ... Search ... Stop Delete ... Help						
<input checked="" type="checkbox"/> Job History		Log file summary: No filter applied						
<input type="checkbox"/> 11								
<input checked="" type="checkbox"/> Scheduler_Test_IPS								
<input type="checkbox"/> SSIS Server Maintenance Job								
<input type="checkbox"/> syspolicy_purge_history								
<input checked="" type="checkbox"/> SQL Server Agent								
<input checked="" type="checkbox"/> Database Mail								
		Date ▾	Step ID	Server	Job Name	Step Name	Notifications	Message
		<input checked="" type="checkbox"/> 2022-01-21 23:44:00			Scheduler_Test_IPS			The job succeeded. The Job wa
		<input checked="" type="checkbox"/> 2022-01-21 23:43:00			Scheduler_Test_IPS			The job succeeded. The Job wa
		<input checked="" type="checkbox"/> 2022-01-21 23:42:00			Scheduler_Test_IPS			The job succeeded. The Job wa
		<input checked="" type="checkbox"/> 2022-01-21 23:37:10			Scheduler_Test_IPS			The job succeeded. The Job wa


4. Exécuter un package SSIS utilisant le T-SQL



4. Exécuter un package SSIS utilisant le T-SQL

```
DECLARE @execution_id bigint
EXEC [SSISDB].[catalog].[create_execution] @package_name=N'01_ForLoop Container.dtsx', @execution_id=@execution_id OUTPUT,
@folder_name=N'SSIS_IPS', @project_name=N'ControleFlowTraining_2', @use32bitruntime=False, @reference_id=NULL, @runinscaleout=False
SELECT @execution_id
DECLARE @var0 smallint = 1
EXEC [SSISDB].[catalog].[set_execution_parameter_value] @execution_id, @object_type=50, @parameter_name=N'LOGGING_LEVEL', @parameter_value=@var0
EXEC [SSISDB].[catalog].[start_execution] @execution_id
GO
```


5. Planifier des packages SSIS avec le planificateur de tâches

 PackageExecutionTest.bat

@ECHO OFF

CLS

ECHO My Test Package executing from batch file

PAUSE

"C:\Program Files\Microsoft SQL Server\150\DTS\Binn\DTEXEC.exe"

/File

"C:\Users\KhawlaElansari\source\repos\ControleFlowTraining_2\ControleFlowTraining_2\01_ForLoop Container.dtsx"

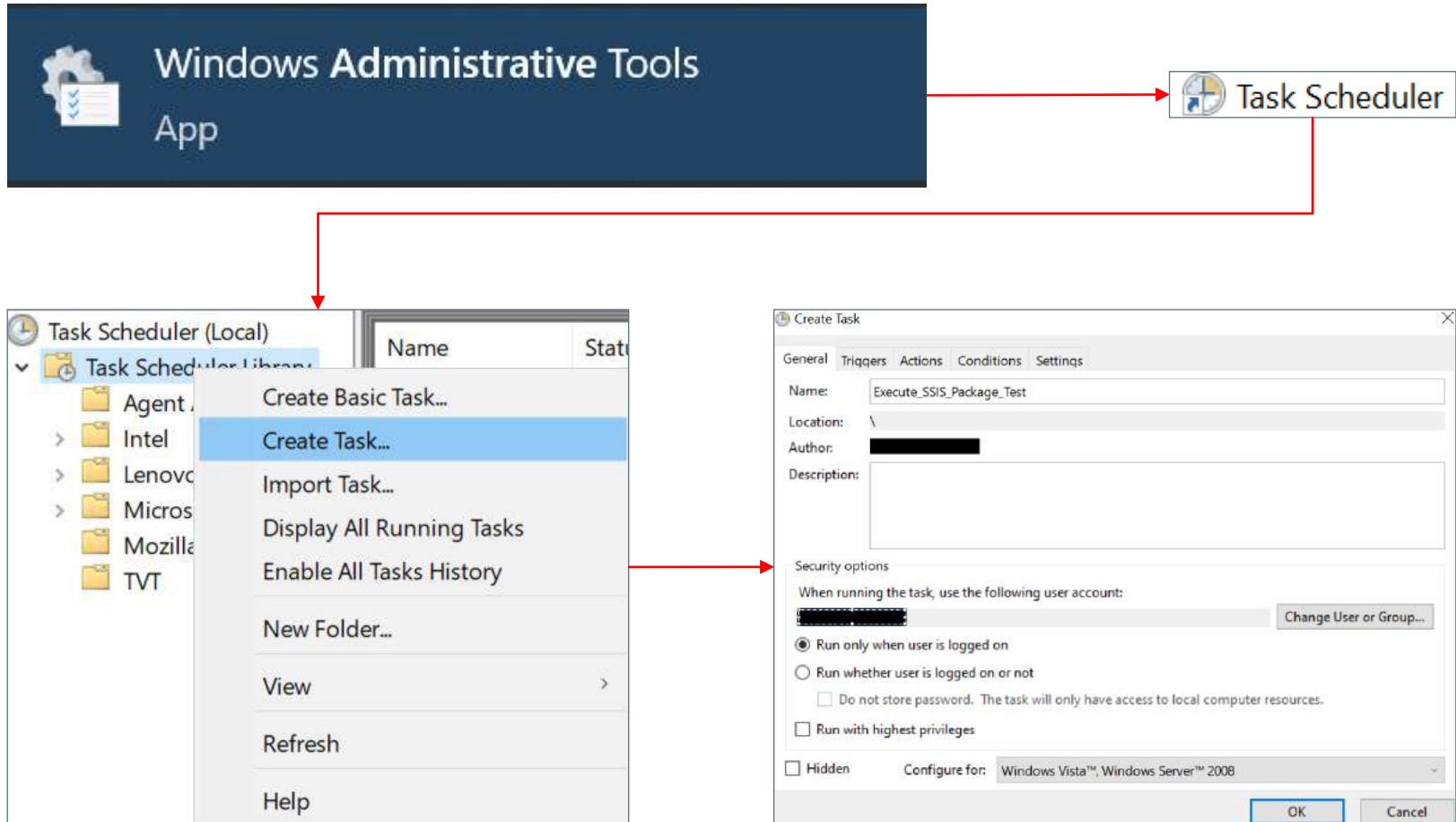
PAUSE

C:\WINDOWS\system32\cmd.exe

```
My Test Package executing from batch file
Press any key to continue . . .
Microsoft (R) SQL Server Execute Package Utility
Version 15.0.2000.5 for 64-bit
Copyright (C) 2019 Microsoft. All rights reserved.

Started: 00:22:18
Progress: 2022-01-22 00:22:19.49
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
Progress: 2022-01-22 00:22:19.49
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
Progress: 2022-01-22 00:22:19.50
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
Progress: 2022-01-22 00:22:19.50
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
Progress: 2022-01-22 00:22:19.51
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
Progress: 2022-01-22 00:22:19.52
Source: Execute SQL Task
Executing query "INSERT INTO [dbo].[SSISForLoopExample]
...": 100% complete
End Progress
DTExec: The package execution returned DTSEI_SUCCESS (0).
```

5. Planifier des packages SSIS avec le planificateur de tâches



5. Planifier des packages SSIS avec le planificateur de tâches

Edit Trigger

Begin the task: On a schedule

Settings

☐ One time

☒ Daily

☐ Weekly

☐ Monthly

Start: 2022-01-22 00:13:27 ☐ Synchronize across time zones

Recur every: 1 days

Advanced settings

☐ Delay task for up to (random delay): 1 hour

☒ Repeat task every: 5 minutes for a duration of: 1 day

☐ Stop all running tasks at end of repetition duration

☐ Stop task if it runs longer than: 3 days

☐ Expire: 2023-01-22 00:29:27 ☐ Synchronize across time zones

☒ Enabled

OK Cancel

New Action

You must specify what action this task will perform.

Action: Start a program

Settings

Program/script: C:\Users\KhawlaElansari\Desktop\Enseignement\Final\TPs\ Browse...

Add arguments (optional):

Start in (optional):

OK Cancel



Questions ?