

Package Reliability

Enabling features to monitor and respond to package activity



Overview

- Package Logging
- Error Handling
- Event Handling
- Transactions
- Checkpoints

Package Logging

Select
Items
To
Log

Create and configure a new log to capture log-enabled events that occur at run time.

Containers:

- ☒ 01_logging
- ☐ FEL Contacts
- ☐ SQL Retrieve C

Providers and Logs

Add a new log

Provider type: Add...

Select the logs to use for the container:

Name	Description	Configuration
<input checked="" type="checkbox"/> SSIS log provider for SQL Server	Writes log en...	AdventureWorks2008R2
<input checked="" type="checkbox"/> SSIS log provider for Windows Event Log	Writes log en...	

Delete

OK Cancel Help

Multiple logs

Multiple Provider Types

- SQL Server
- Windows Event Log
- Text file
- XML file
- SQL Server Profiler

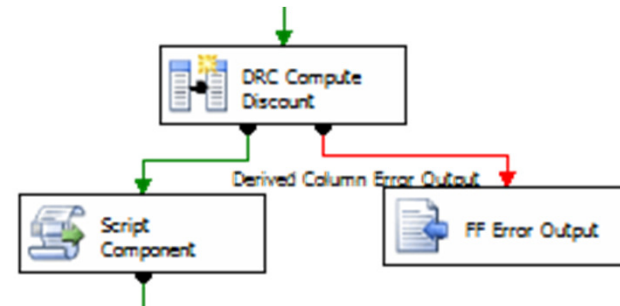
System Tables
dbo.sysssislog
Columns
id (PK, int, not null)
event (sysname(nvarchar(128)), not null)
computer (nvarchar(128), not null)
operator (nvarchar(128), not null)
source (nvarchar(1024), not null)
sourceid (uniqueidentifier, not null)
executionid (uniqueidentifier, not null)
starttime (datetime, not null)
endtime (datetime, not null)
datacode (int, not null)
databytes (image, null)
message (nvarchar(2048), not null)

Use Log method in Script Task for custom logging

Error Handling

- Common errors in the data flow

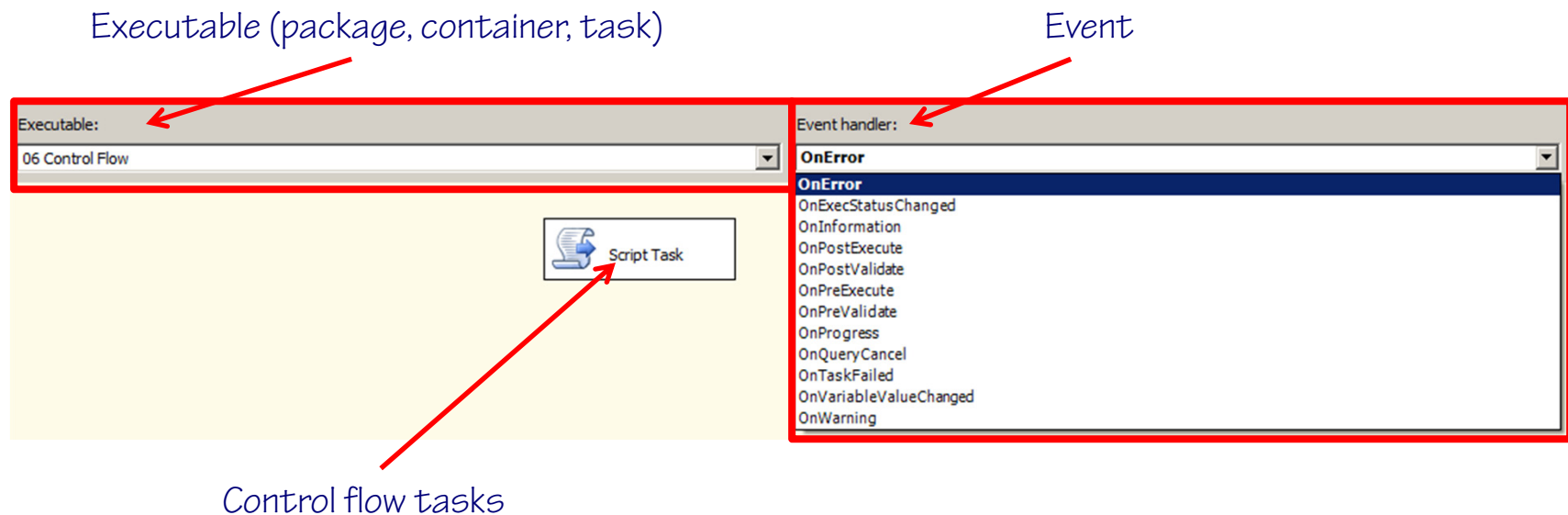
- Data type mismatch
- Lookup failure
- Expression evaluation failure
- Truncation



Input or Output	Column	Error	Truncation	Description
Derived Colum...				
	DiscountSales	Redirect row	Fail component	Computation
		Ignore failure		
		Redirect row		
		Fail component		

Event Handling

- Respond to events raised during package execution
- Examples:
 - Send an e-mail when a warning or error occurs
 - Retrieve system information when a package runs
 - Clean up temporary data storage when a package completes

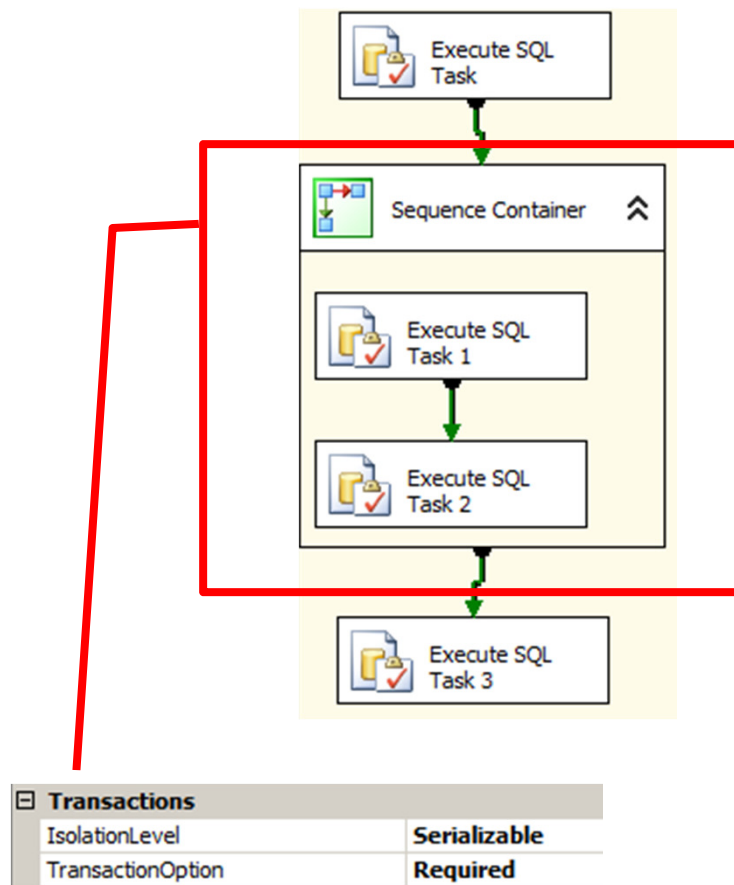


Transactions

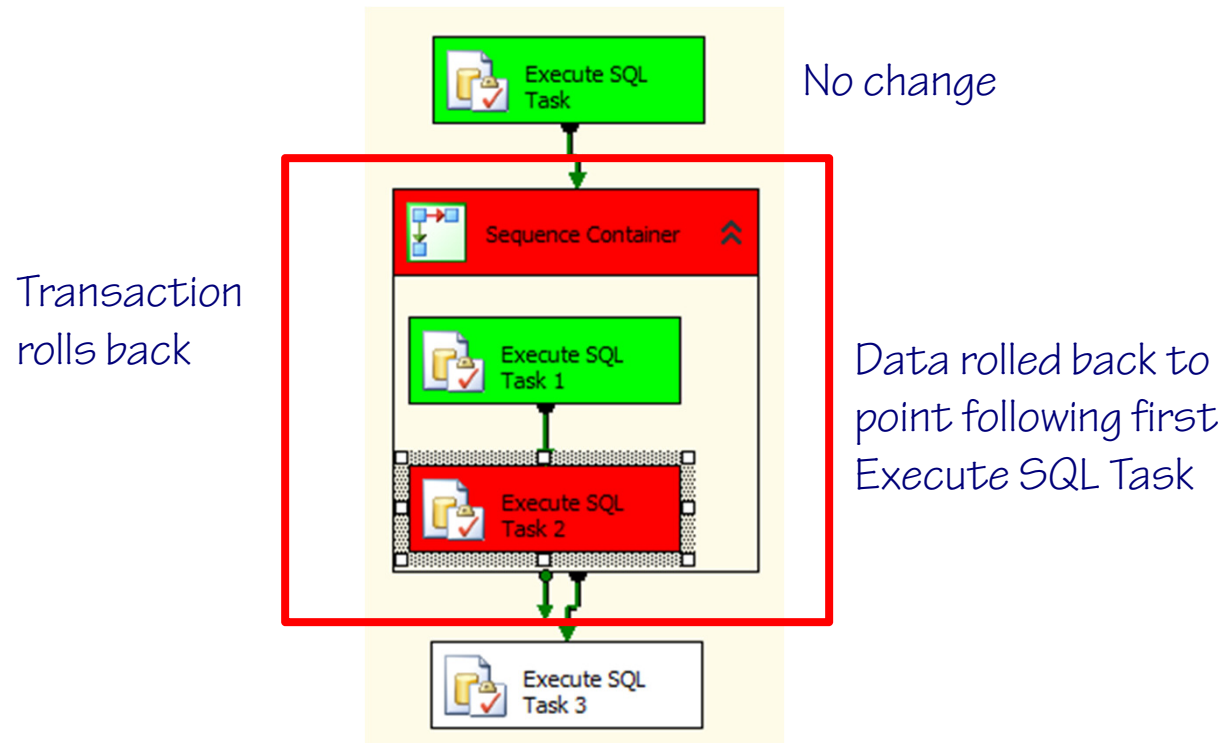
- **Requires running Distributed Transaction Service (MSDTC)**
- **Applies to package, container, and most control flow tasks**
 - One transaction at a time
 - Child packages can participate in parent's transaction

TransactionOption	Description
Required	If transaction exists, join it -else start a new one
Supported (default)	If transaction exists, join it
NotSupported	Do not join existing transaction

Transaction Properties

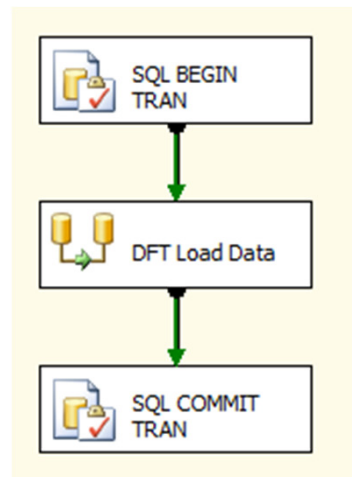


Transaction Failure



Native Transaction Support

- Running the MSDTC service adds overhead to server
- Relying on transaction rollback may be time-consuming
- Using native transaction support in RDBMS might perform better



Package Checkpoints

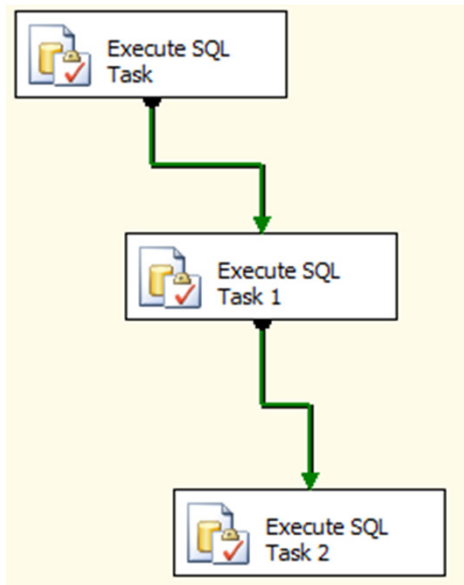
- Applies only to control flow
- Requires task `FailPackageOnFailure = True`

Package Property	Description
CheckpointFilename	Filename to use
CheckpointUsage	Never – package never restarts If Exists – Package restarts from checkpoint if checkpoint file exists Always – Package restarts using a checkpoint file (and fails if missing)
SaveCheckpoints	Boolean – must be True to use checkpoints

Package Checkpoints

Enable Checkpoints

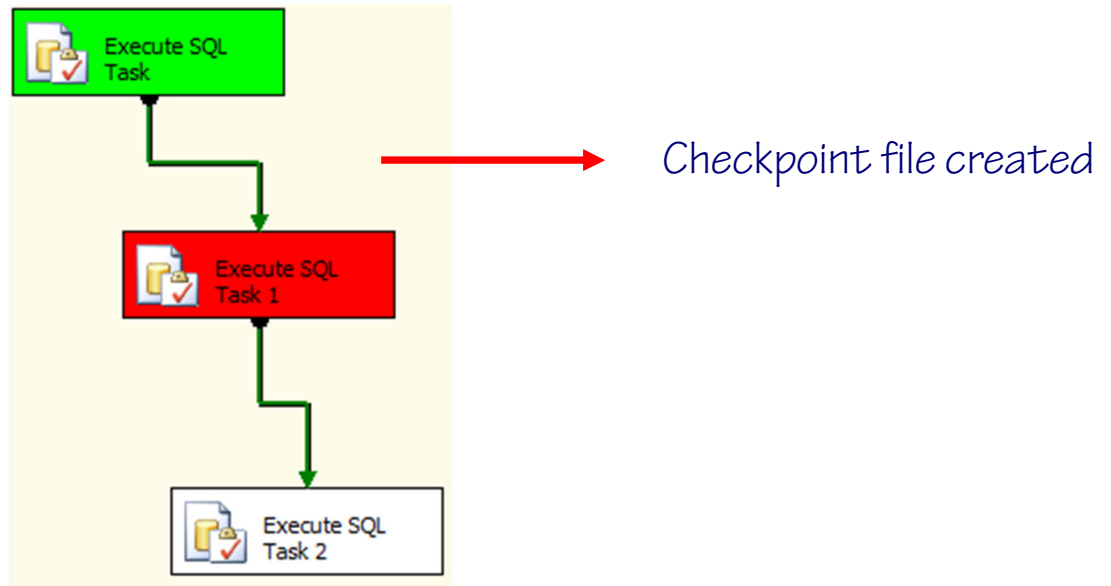
Checkpoints	
CheckpointFileName	C:\SSIS\MyCheckpoint.xml
CheckpointUsage	IfExists
SaveCheckpoints	True



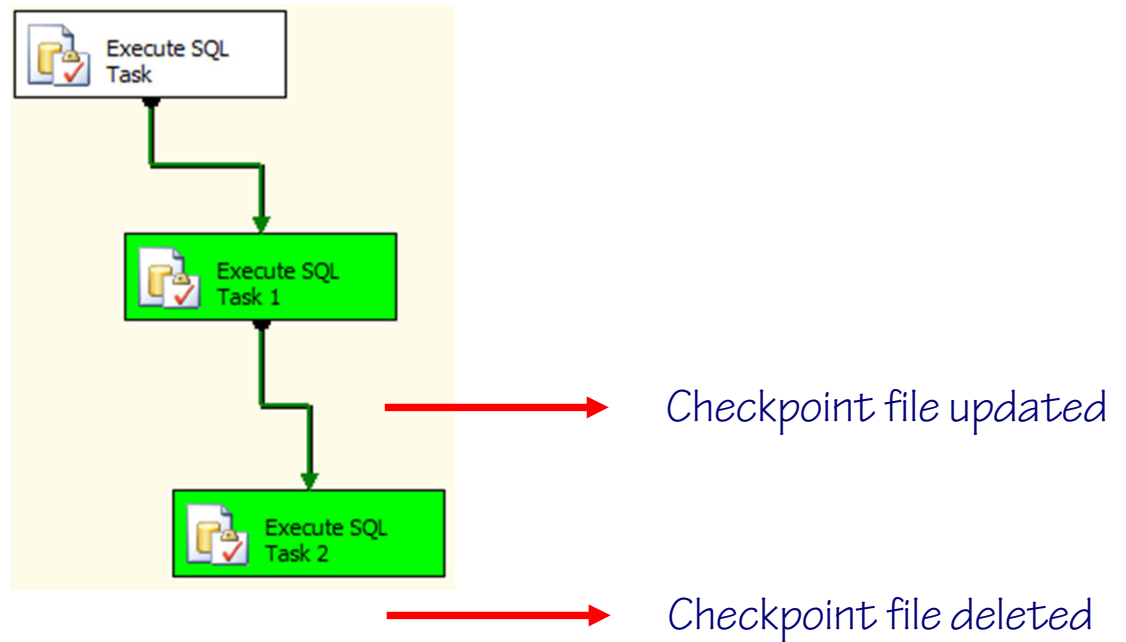
Configure each task

Execute SQL Task Task	
DelayValidation	False
Disable	False
DisableEventHandlers	False
FailPackageOnFailure	True

Execution Failure



Package Re-Execution



Summary

- **Package Logging**
 - Executable logging, event-based, custom logging with script
- **Error Handling**
 - Error output for bad data, conversion errors, and truncation in data flow
- **Event Handling**
 - Control flow tasks to execute only when event fires
- **Transactions**
 - Rollback of SQL statements to protect data integrity when package fails
- **Checkpoints**
 - Restart of packages from point of failure

References

- **Implementing Logging in Packages**
 - <http://msdn.microsoft.com/en-us/library/ms138020.aspx>
- **Handling Errors in the Data Flow**
 - <http://msdn.microsoft.com/en-us/library/ms141679.aspx>
- **Integration Services Event Handlers**
 - <http://msdn.microsoft.com/en-us/library/ms140223.aspx>
- **Ensuring Data Integrity by Using Transactions**
 - <http://msdn.microsoft.com/en-us/library/ms137690.aspx>
- **Restarting Failed Packages by Using Checkpoints**
 - <http://msdn.microsoft.com/en-us/library/ms140226.aspx>