Module 8

Debugging and Troubleshooting SSIS Packages

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Module Overview

- Debugging an SSIS Package
- Logging SSIS Package Events
- Handling Errors in an SSIS Package

Lesson 1: Debugging an SSIS Package

- Overview of SSIS Debugging
- Viewing Package Execution Events
- Breakpoints
- Variable and Status Windows
- Data Viewers
- Demonstration: Debugging a Package

Overview of SSIS Debugging

- Debugging During Development
  - Observe row counts and task outcome
  - View events in the Output window and Progress/Execution Results tab
  - Step through package execution
  - Track variable values
  - View data in the data flow
- Debugging in the Production Environment
  - View package execution logs
  - Create a dump file

Viewing Package Execution Events

- Package execution is a sequence of events generated by tasks and containers
- During debugging, events are shown:
  - Progress/Execution Results tab
  - Output window

Breakpoints

- Add breakpoints to halt execution when debugging
- Specify breakpoint conditions:
  - Event
  - Hit Count
- Manage breakpoints in the Breakpoints window

Variable and Status Windows

- Locals window: shows in-scope variables and status
- Watch windows: show selected variables

Data Viewers

- Enable data viewers on data flow paths
- View data as it passes through the data flow
- Copy data for further investigation

Demonstration: Debugging a Package

In this demonstration, you will see how to:

- Add a breakpoint
- View variables while debugging
- Enable a data viewer

Lesson 2: Logging SSIS Package Events

- SSIS Log Providers
- Log Events and Schema
- Implementing SSIS Logging
- Viewing Logged Events
- Demonstration: Logging Package Execution

SSIS Log Providers

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

Log Events and Schema

Log Events

- OnError
- OnExecStatusChanged
- OnInformation
- OnPipelinePostComponentCall
- OnPipelinePostEndOfRowset
- OnPipelinePostPrimeOutput
- OnPipelinePreComponentCall
- OnPipelinePreEndOfRowset
- OnPipelinePrePrimeOutput
- OnPipelineRowsSent
- OnPostExecute
- OnPreExecute
- OnPreValidate
- OnProgress
- OnQueryCancelled
- OnTaskFailed
- OnVariableChangedValue
- OnWarning
- Diagnostic
- DiagnosticEX

Log Schema

- StartTime
- EndTime
- DataCode
- Computer
- Operator
- MessageText
- DataBytes
- SourceName
- SourceID
- ExecutionID

Implementing SSIS Logging

1. Add and configure log providers
2. Select containers and tasks to include
3. Select events and details to log
4. Override log settings for child executables if required

Viewing Logged Events

- Logged events are displayed in the Log Events window
  - Even if no log provider is specified
- Useful for:
  - Troubleshooting
  - Testing a logging strategy

Demonstration: Logging Package Execution

In this demonstration, you will see how to:

- Configure SSIS logging
- View logged events

Lesson 3: Handling Errors in an SSIS Package

- Introduction to Error Handling
- Implementing Event Handlers
- Handling Data Flow Errors
- Demonstration: Handling Errors

Introduction to Error Handling

- Handling errors in control flow
  - Failure precedence constraints
  - Event handlers
- Handling errors in data flow
  - Ignore or redirect failed rows

Implementing Event Handlers

- Add an event handler on the Event Handler tab
- Each event handler has its own control flow
- Use contextualized system variables to implement custom logging or notifications

Handling Data Flow Errors

- Configure Error Output for data flow components:
  - Fail component
  - Ignore failure
  - Redirect row
- Redirect failed rows with error output path
- DiagnosticEX event for more detailed error information
- Use custom ETL data lineage to trace data back from the destination to the source, retaining all history of transformations and deduplication

Demonstration: Handling Errors

In this demonstration, you will see how to:

- Implement an event handler
- Redirect failed rows
- Add DiagnosticEX logging