SQL Server 2005: Integration Services

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Course description: This course will enable technology professionals with little or no ETL experience and minimal exposure to SQL Server 2005 and Visual Studio 2005 to be comfortable and productive with the SSIS tools and technologies. In this course you will learn about the SQL Server Management Studio (SSMS) and building Database Maintenance Plans. You will be introduced to the Business Intelligence Development Studio (BIDS) and working with Control Flow and Data Flow. You will also become familiar with SSIS package management and package deployment along with learning to write solid code using debugging, error handling and logging techniques.

Course outline:

Tour of SSIS
- Introduction
- Understand SSIS
- Overview: ETL
- SSIS Package Parts
- Package Lifecycle
- Tools for Building Pkgs
- Export Data to Excel
- Launch DTS Wizard
- Choose a Data Source
- Choose a Destination
- Select the Data
- Select Source Tables/Views
- Edit Package Mappings
- Execute the Package
- Save the Package
- Set Pkg Protection Level
- Perform the Export
- View Steps Performed
- View Export Results
- Import Data into Table
- View Import Results
- Run the Package
- Summary

Introduction to BIDS
- Introduction
- Pkgs in BIDS
- BIDS Interface
- SSIS Components
- Control Flow Designer
- Data Flow Designer
- Event Handler Designer
- Package Explorer
- Connection Managers
- Demo: BIDS Guided Tour
- Execute Pkg Outside BIDS
- Demo: DTExecUI
- Demo: SQL Agent Job
- Demo: View Pkgs in SSMS
- Summary

Intro to Control Flow
- Introduction
- Overview: Control Flow
- Control Flow Tasks
- Workflow Tasks
- Execute SQL Task
- Demo: Execute SQL Task
- Control Flow Toolbox
- Edit Task Properties
- Create New Connection
- Set SQL Source Type
- Test Execute SQL Task
- File System Task
- Demo: File System Task
- FTP Task
- Send Mail Task
- SQL Operations Tasks
- Summary

Precedence Constraints
- Introduction
- Overview
- Constraint Values
- Demo: Create Constraints
- Data Processing Tasks
- Data Flow Task
- Things to Consider
- Summary

Data Flow
- Introduction
- Overview: Data Flow
- Data Flow Pipeline
- Data Flow Components
- Data Sources
- Source Adapters
- Setup a Data Source
- Data Flow Sources
- Examine OLE DB Source
- Data Destinations
- Destination Adapters
- Data Viewers
- Setup Data Destination
- Examine DataReader
- Setup a Transformation
- Examine Derived Column
- DataReader Adv Props
- Test the Package
- Configure Data Viewer
- Save/Run Package
- Add Second Viewer
- Summary

Data Transformations
- Introduction
- Overview
- DT Categories
- Row Transformations
- RowSet Transformations
- Split/Join Transformations
- BI Transformations
- Other Transformations
- Demo: Transformations
- Demo: Union All Tfms
- Demo: Sort Tfms
- Demo: Audit Tfms
- Test the Package
- View Results
- Demo: Multicast Tfms
- Demo: Tfms
- Summary

Variables and Config
- Introduction
- Overview: Variables
- Variable Properties
- Common Data Types
- Where to Use Variables
- Variable Use Guidelines
- Variable Scope
- Scope w/Execute Package
- Creating Variables
- Demo: Add Variables
- Use Vars in Control Flow
- Demo: ForEach Enumerator
- Use vars in Data Flow
- Demo: ForEach w/Data Flow
- Add an Expression
- Summary

Property Expressions
- Introduction

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- Overview
- Understand Configurations
- Data Flow Expressions
- Using Configurations
- Config Stored as Strings
- Package Config Organizer
- Enable Package Config
- Var/Config Between Pkgs
- Parent/Childs Scenarios
- Direct Configuration
- Indirect Configuration
- Enable Indirect Config
- Summary

Advanced Control Flow Tasks
- Introduction
- Overview
- Using Containers
- Container Properties
- Grouping
- Demo: Grouping
- Task Host Container
- Sequence Container
- For Loop Container
- ForEach Loop
- Demo: ForEach Loop
- Transaction Support
- Demo: Transaction Support
- Summary

Advanced Control Flow (cont)
- Introduction
- Execute DTS Package
- Demo: Execute DTS Pkg
- DTS Designer Components
- Execute Process
- FTP Task
- Web Service Task
- Demo: Web Service Task
- Examine Web Service
- Examine the .wsdl
- Create WS Package
- Add a WS Task
- Add a Script Task
- Test Web Service Task
- Summary

Checkpoints
- Introduction
- Overview: Checkpoints
- Implement Checkpoints
- Considerations
- Demo: Checkpoints
- Summary

Error Handling/Logging
- Introduction
- Package Logging
- View Log Events in BIDS
- Log Events Pane
- Log Schema
- Config Package Logging
- Config Persistent Logging
- Test Persistent Logging
- Config SQL Server Logging
- Examine dbo.sysdtslog90
- View Windows Event Log
- Custom Logging
- Summary

Error Handling/Logging (cont)
- Introduction
- Control Flows
- Use Precedence
- Demo: Precedence
- Event Handling
- Use Event Handling
- Error Handler
- Demo: Error Handler
- Outputs in Data Flows
- Config Error Output
- Redirect Error Output
- Redirect and Repair
- Demo: Error Output
- Summary

Advanced Data Flow
- Introduction
- Sync Transformations
- Async Transformations
- Common Sync Types
- Common Async Types
- Error Outputs
- Demo: Error Outputs
- Summary

Advanced Transformations
- Introduction
- Overview
- Audit
- Multicast
- Conditional Split
- Derived Column
- Union All
- Merge
- Lookup
- Demo: Lookup
- Setup Properties
- Fuzzy lookup
- Demo: Fuzzy Lookup
- Fuzzy Lookup Properties
- Summary

Package Deployment
- Introduction
- Challenges
- What Can Help?
- Overview: Deploy Pkgs
- Package Deployment Utility
- Deployment Utility Props
- Create Deployment Folder
- Deployment Folder
- Deployment Manifest
- Package Deployment Wizard
- Deploy to File System
- Deploy to SQL Server
- Redeploy a Package
- Summary

Package Management
- Introduction
- Overview
- Manage Pkgs w/DTUtil
- Manage Pkgs w/SSMS
- Executing Packages
- Execute Package Utility
- Demo: DTExecUI
- DTExec
- Scheduling w/SQLAgent
- Demo: SQLAgent Jobs
- Summary

Package Security
- Introduction
- Overview: Security
- Sensitive Package Data
- Package Properties
- Pkg Security Options
- Package Storage
- Store Pkgs in SSMS
- SQL Server Pkg Security
- Authorize SSIS Users
- Demo: Authorize User
- Sign Pkgs w/Certs
- Summary

Control Flow Scripting
- Introduction
- Extend SSIS Capabilities
- Overview: Scripting
- Custom Component Dev
- SSIS Scripting
- What Scripting Can Do
- When to Use It?
- When NOT to Use It?
- Script Editor
- Create a Script Task
- SSIS Object Model
- Script in Control Flow
- Overview: Script Task
- Overview: Variables
- More Complex Script Task
- Summary

Data Flow Scripting
- Introduction
- Beyond Built-in Tasks
- Scripting in Data Flows
- Script Component
- Input/Output Columns
- Component as Source
- Comp. as Destination
- Comp. as Transformation
- Beyond Built-In Data Flow
- Create Custom Trans
- Add Script Component
- Edit Script Component
- Build the Script
- Row Count Transformation
- Test Custom Trans
- Add Logging
- Test Logging
- Summary

Custom SSIS Components
- Introduction
- Custom Components
- Component Development
- 3rd Party Components
- Work w/3rd Party Component
- Summary

Beyond ETL
- Introduction
- Beyond ETL
- Migrate SQL Servers
- Transfer Tasks
- Transfer Database Task
- Transfer Logins Task
- Maintenance Plans
- Build Maintenance Plan
- Export Pkg to a File
- Summary

Additional Topics
- Introduction
- Work with SSAS
- Folder/File Mgmt
- Work with Event Log
- Demo: Work with WMI
- Summary

Best Practices
- Introduction
- Overview: Best Practices
- Development
- Demo: Annotations
- Demo: Templates
- Package Design

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- Error Handling
- Package Design (cont)
- Data Flow Sources
- Data Flow Trfms
- Demo: Block vs. Non-Block
- Data Flow Trfms (cont)
- Data Flow Dest
- Data Flow Engine
- Performance
- Demo: Parent/Child Pkgs
- Stopped Here
- Demo: Parent Variables
- Ongoing Development
- Security
- Management/Maintenance
- Demo: Perfmon
- Summary