



Introducing the Most Comprehensive CDC & Data Replication Suite for SQL Server Integration Services

Affordable solutions for real-time data integration & replication

Richard Thomas – Director US Technical Services

richard.thomas@attunity.com

Jeff Cole – Senior Software Engineer

Jeff.cole@attunity.com

Welcome to this Attunity Webinar

Thank you for joining!

A few logistical points...

- ❖ All participants are muted
- ❖ Got questions ?
 - ❖ Please ask using the Q&A panel located on the right hand side of your screen, at the bottom of the GoToWebinar applet
 - ❖ Answers will be provided after the demonstration
- ❖ We will send you a copy of the slides used today via email
- ❖ Having connection problems ? ... please use the Q&A panel

Agenda

- ❖ **Introduction**
- ❖ **ODR and CDC – overview and considerations**
- ❖ **Attunity CDC Suite for SSIS - product overview**
- ❖ **Demo - end to end!**
- ❖ **Summary + Q&A**

Next steps to help you get started...

Agenda

- ❖ **Introduction**
- ❖ **ODR and CDC – overview and considerations**
- ❖ **Attunity CDC Suite for SSIS - product overview**
- ❖ **Demo - end to end!**
- ❖ **Summary + Q&A**

Common questions/issues:

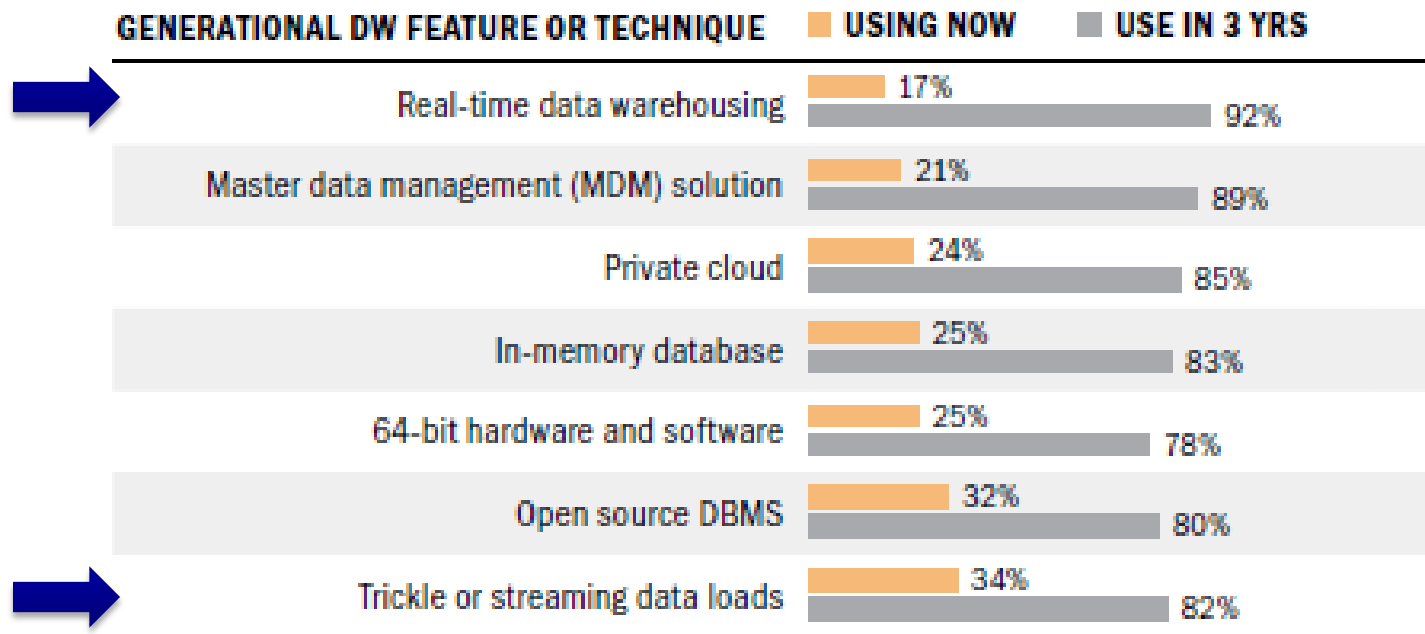
1. Can we get data **faster** to support business users and operations?
2. Can we move data **efficiently**?
3. Can we handle the increasing **volumes** of data?
4. Can we **eliminate batch** windows?
5. Can we **reduce costs**?

Yes, we can.

The Need - Real-time DW



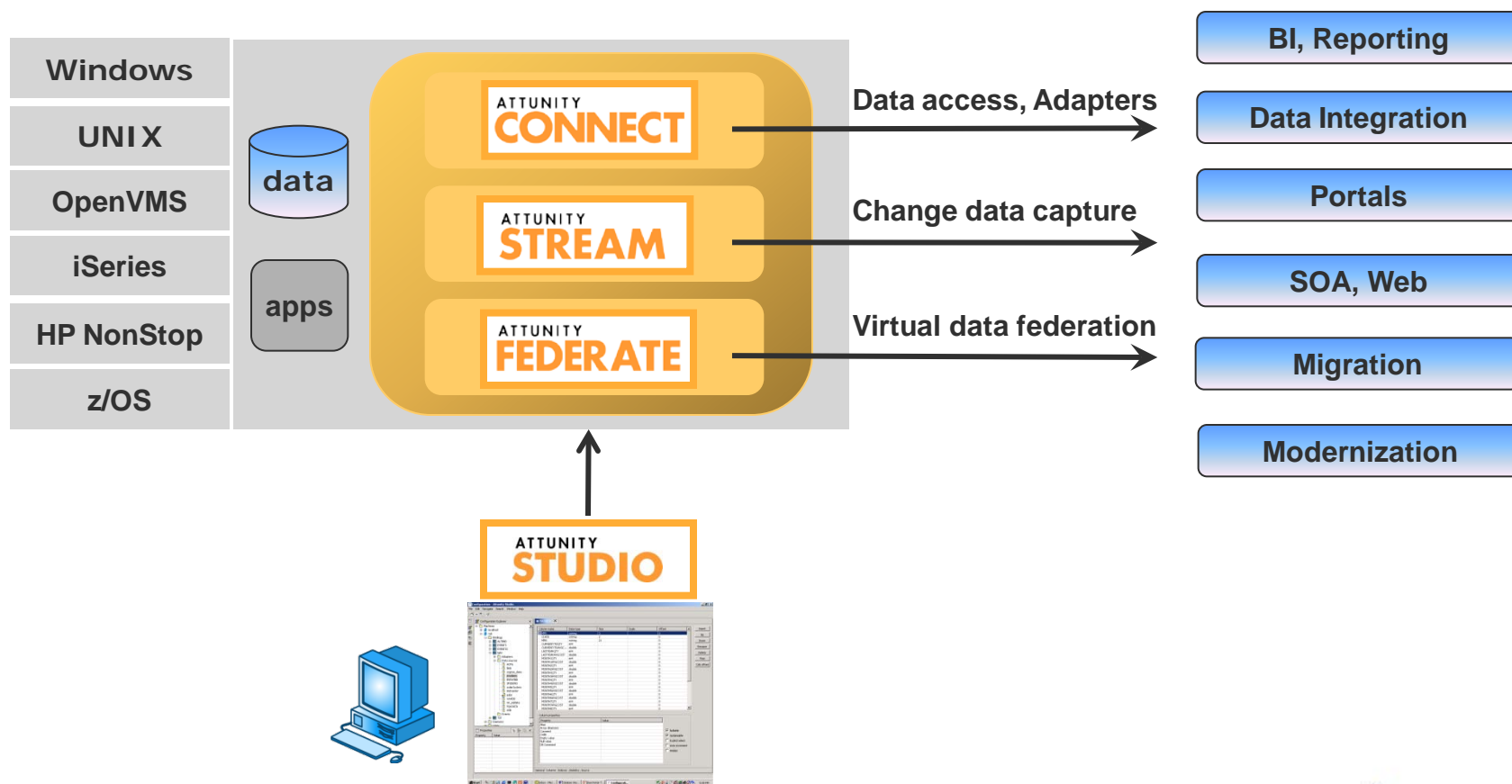
❖ 92% will be using RTDW within 3 years*







* TDWI Best Practice Report - Next Generation Data Warehouse Platforms, Q4 2009

Attunity Integration Suite

Real-time Data Integration and Event Capture



The Choice of Industry Leaders

	SQL Server (SSIS)	High Speed connectors for Oracle and Teradata Change data capture
	Oracle Database Fusion Middleware	Database Gateways for the Mainframe Integration with mainframe and Tuxedo Change data capture
	OPTIM DataStage	Mainframe data access for archiving Change data capture for DataStage
	Data Integrator	Data access to mainframe data sources Change data capture

Worldwide Customers

SUNGARD

RAYMOND JAMES
Individual solutions
from independent advisors



GE Healthcare

HSBC 
The world's local bank

 **Fidelity**
INVESTMENTS



 **RBC**
Royal Bank

LLOYD'S

Xchanging

 **PIONEER**
Investments

Goldman Sachs



COMMERZBANK 

Deutsche Bank 

 **M&T Bank**

Federal Home Loan
 Bank Seattle

RADIAN
Changing the nature of risk.™



 **Reliance**
TRUST COMPANY

AccuWeather

 **Chevron**

SONY



 **Georgia-Pacific**
www.gp.com



 **BALLI**

 **Pitney Bowes**

 **Allegheny Ludlum**
An Allegheny Technologies Company

 **Medtronic**

AGFA 

 **verizon**

 **JM FAMILY**
ENTERPRISES, INC.

 **REPUBLIC NATIONAL**
DISTRIBUTING COMPANY

 **CABLE & WIRELESS**

georgia.gov™

PENSKE

 **NAVY.mil**

WASHINGTON STATE
 **UNIVERSITY**

 **EDFUND**
STUDENTS FIRST

Welcome to
 **Lufthansa**

NORTEL
NETWORKS™

Agenda

- ❖ Introduction
- ❖ **ODR and CDC – overview and considerations**
- ❖ Attunity CDC Suite for SSIS - product overview
- ❖ Demo - end to end!
- ❖ Summary + Q&A

CDC and ODR

CDC

CDC is a data integration technology that captures and delivers only the changes made to enterprise data sources. It enables real-time and efficient data integration/replication.

ODR

Operational Data Replication (ODR) provides a complete solution for creating a copy of one database in another, periodically or in real-time. ODR employs CDC to replicate changes from source to target efficiently and in real-time.

Attunity CDC for SSIS is ODR software that:

- Employs log-based **CDC** for many different data sources
- **Replicates** data to any target, periodically or in real-time
- Leverages **SSIS** to provide reliability, extensibility, and lower-cost
- Provides complete recoverability and manageability

Common Use Cases for CDC and ODR

1. **Data warehousing** (efficient/frequent extraction or SCD)
2. **Data replication / synchronization** (for operational reporting)
3. **Master Data Management** (MDM)
4. **Application integration** (maintain integrity, sync)
5. **Legacy modernization and migration**

National Life Group

Customer Case Study – Enabling real-time BI & MDM



NATIONAL LIFE
GROUP®

- Fortune 1000 Insurance Company
- Revenues of \$1.6B, serves 870K+ customers
- Consists of several companies, 900+ agents



Need:

- Enable Enterprise Data Initiative including MDM & operational BI/reporting
- Provide agents & managers with real-time data through Web applications
- Heterogeneous solution with tight integration to Microsoft platform & tools

Solution:

- Attunity Stream – CDC moves real-time data across Mainframes & SQL Server
- Attunity CDC Suite for SSIS – replication software with tight SSIS integration

Benefits:

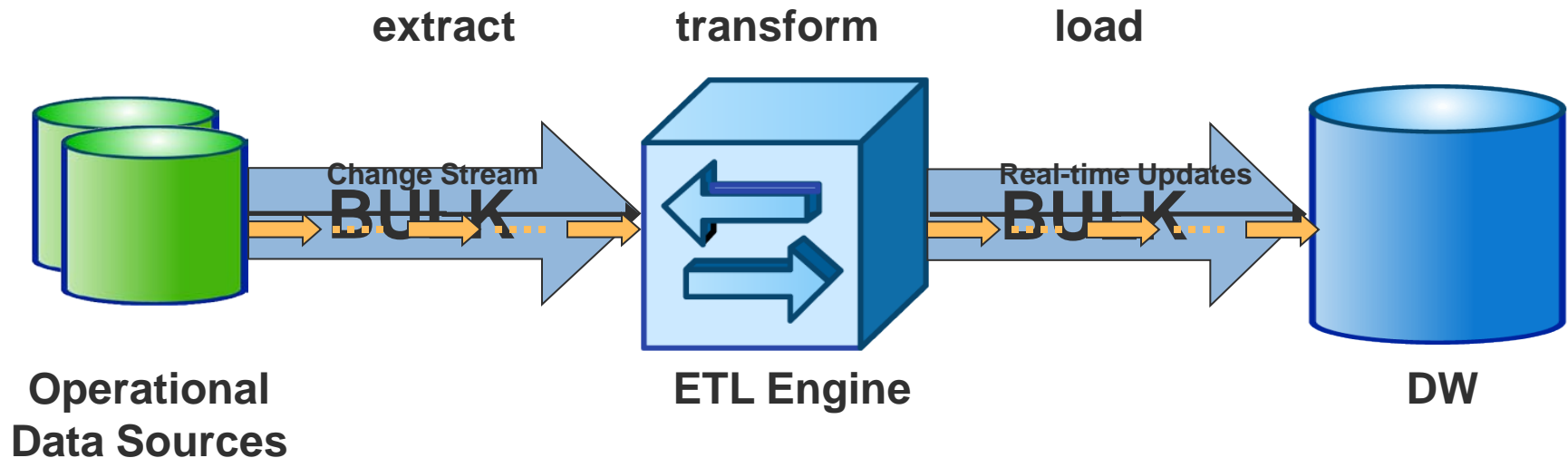
- Improved agent productivity
- Improved operations
- Increased revenue opportunities
- single portal with real-time customer data
- real-time, self-service BI for managers
- sales analysis & cross-selling now possible

Drivers for using CDC

- ❖ **Increasing demand for up-to-date/real-time data**
- ❖ **Increasing data volumes**
- ❖ **Shrinking batch windows**
- ❖ **Pressure to reduce cost**
 - ❖ (i.e. resources for processing large amounts of data)
- ❖ **Reducing risks of failure of long batch jobs**

Traditional ETL vs. CDC-ETL

CDC-based ETL



- Moves **Only Changes** to the Data
- **Req'd** 'Window of Operation' (hours to days)
- Frequency/Latency – multiple, weekly, daily, or real-time
- Periodic or Continuous Change Flow

CDC value & benefits:

- ❖ **Low latency/Real-Time Information**
- ❖ **Efficiency and lower resource utilization**
- ❖ **Low overhead/impact of source systems**
- ❖ **Lower cost, Affordable**
- ❖ **Lower risk for business operations due to DI failures**

CDC Approaches and Technologies

- ❖ Use **timestamps** in extracts and file dumps
- ❖ Extract and **compare** current data to its history
- ❖ Use custom-built **triggers**
- ❖ **Log-based** CDC
 - ❖ Low impact. Non-intrusive.
 - ❖ Efficient.
 - ❖ Reliable.
 - ❖ Scalable.

Agenda

- ❖ Introduction
- ❖ ODR and CDC – overview and considerations
- ❖ **Attunity CDC Suite for SSIS - product overview**
- ❖ Demo - end to end!
- ❖ Summary + Q&A

Attunity CDC Suite for SSIS

Award-winning! Fully integrated, now supporting 10+ sources:

- ❖ SQL Server
- ❖ Oracle
- ❖ DB2 on Linux, UNIX, Windows
- ❖ DB2/400 on IBM iSeries (AS/400)
- ❖ DB2 on IBM zSeries (Mainframe)
- ❖ VSAM, IMS, Adabas on IBM Mainframe
- ❖ RMS on OpenVMS
- ❖ SQL/MP on HP NonStop
- ❖ Enscribe on HP NonStop

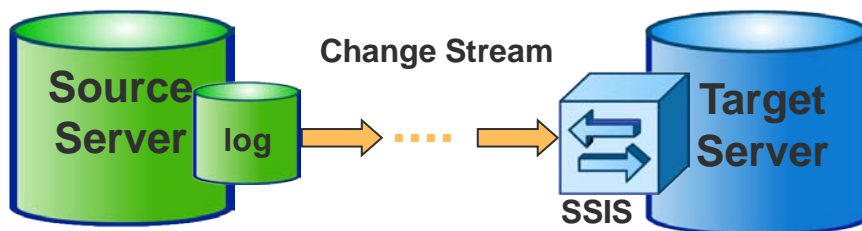


+CDC Accelerator for non-relational sources including **Mainframe** (VSAM, IMS/DB, Adabas) and **HP NonStop** (Enscribe).

Attunity CDC Suite for SSIS

Complete solution for integrating changes made to source database tables using SSIS, efficiently and in real-time

1. Minimal impact on source (log-based CDC, no install on source DB)
2. Efficient and reduced use of resources (process only changes)
3. End-to-end replication solution. Customizable.
4. Synchronizes Bulk-Load and CDC
5. Monitoring & control console



The screenshot shows the monitoring console for the CDC Service. The service is 'Started' and 'Active'. The detailed status is 'idle' with a message 'Waiting for new change events'. The console also displays performance metrics and statistics.

Performance	
Processed Change Records/Sec History	
01	
01	
01	
00	
00	
00	

Transactions		Resources	
Active:	0	Memory Usage (Kb):	0 (0%)
Buffered On Disk:	0	Disk Usage (MB):	0.02
Last Timestamp:	12/10/2008 2:03:34 PM		

Statistics		Change Records		Errors	
Transactions Completed:	143	Processed:	2	Total:	0
Timed Out:	0	Deleted:	0		
Rollback:	0				

Introducing the Latest Enhancements...



1. Supported sources doubled to **more than 10**
2. Introducing **“zero footprint” replication** for SQL Server, Oracle, & DB2 (on Linux, UNIX, Windows)
3. Introducing **enhanced Management Dashboard & Notification Services**
4. Enhanced performance for Oracle CDC with approximately **40% throughput improvements**
5. Simplified & automated replication for **non-relational** data sources (eg. VSAM, IMS, RMS)

Southeastern Freight Lines

Customer Case Study – Data Modernization Improves Operations



- Large North American trucking company
- More than 76 service centers & 6800 associates
- Industry leader; has won 300+ awards



Need:

- To improve operational efficiency through IT platform modernization
- Replace existing OpenVMS Alpha servers with new HP Integrity servers
- Faster platform / real-time data for improved customer responsiveness

Solution:

- Attunity Stream – CDC moves RMS/non-relational data to a relational database
- Attunity RMS-CDC for SSIS – real-time replication with tight SSIS integration

Benefits:

- Improved operations
- Improved productivity
- Increased customer satisfaction
- accurate, real-time data on modern platform
- real-time shipment, invoicing, load time data
- customer requests answered more quickly

AUTOonline

Customer Case Study – Offloading data for BI and HA

AUTOonline

The Value Experts

- Germany-based global eCommerce network
- Markets & sells over 650K used vehicles
- 1000+ dealers & +4000 buyers & insurers

Need:

- Enable real-time BI and reporting
- Ensure eCommerce network users have real-time, smooth experience
- Increase reporting capacity without impacting eCommerce database servers

Solution:

- Attunity Oracle-CDC for SSIS – offloading Oracle data with minimal impact
 - SQL Server 2008 R2 – scalable and robust BI platform
-

Benefits:

- Improved productivity
- Customer satisfaction
- Improved report processing
- real-time, self-service BI for managers
- real-time, smooth online experience
- increased capacity by +30%

Architecture

- ❖ **Log-based**, non-intrusive CDC
- ❖ **Table & Record Filtering** (by operation, column, content)
- ❖ **Flexible delivery models** (mini/micro-batch, continuous)
- ❖ **High Throughput** (thousands records/second at customer trials)
- ❖ **Scalable** – handles hundreds of tables
- ❖ **Reliable** delivery and recovery

Supported Environments

- ❖ Supports SSIS in **SQL Server 2005 & 2008/R2**
- ❖ Supports SSIS in **SQL Server Standard & Enterprise**
- ❖ Available in **32bit and 64bit** (except IA64)

Ease of Use

❖ Installation

- ❖ Downloadable via the web
- ❖ Very simple installation (3-4 minutes)
- ❖ Includes source Client!

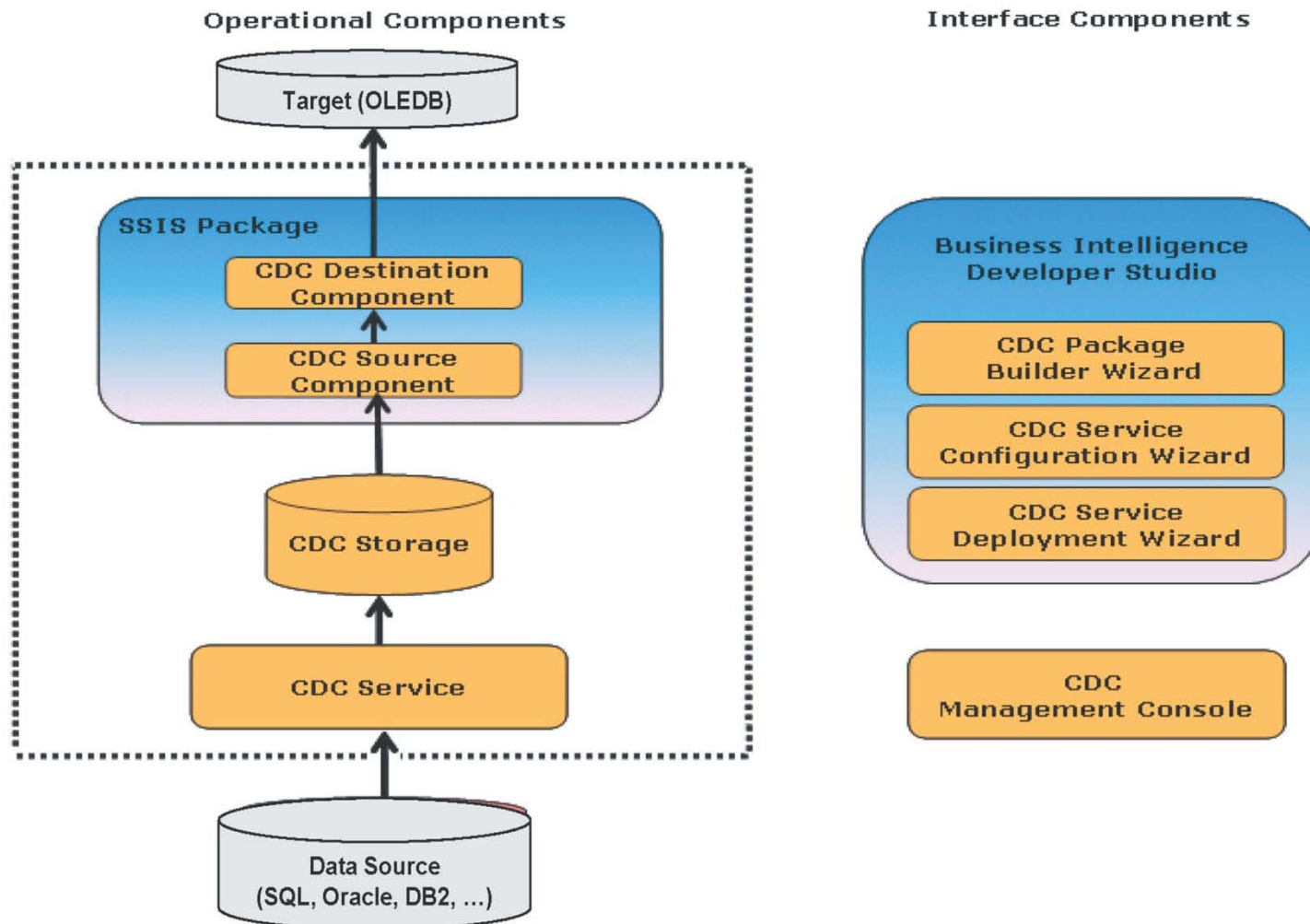
❖ Configuration

- ❖ Fully Integrated into SSIS
- ❖ Wizard based configuration
- ❖ Automatic generation of SSIS packages

❖ Management

- ❖ MMC-based Management Console
- ❖ Monitoring and control for CDC Services and CDC Package Processing

Attunity CDC for SSIS Product Components



Agenda

- ❖ Introduction
- ❖ ODR and CDC – overview and considerations
- ❖ Attunity CDC Suite for SSIS - product overview
- ❖ Demo - end to end!
- ❖ Summary + Q&A

Agenda

- ❖ Introduction
- ❖ ODR and CDC – overview and considerations
- ❖ Attunity CDC Suite for SSIS - product overview
- ❖ Demo - end to end!
- ❖ Summary + Q&A

Key Benefits

Affordable, Efficient and Real-time Data Integration of Source Data:

- 1. Simplify and accelerate CDC implementation**
- 2. Deliver real-time information**
- 3. Design efficient data integration solutions**
- 4. Leverage existing SQL Server investments**
- 5. Reduce resources and costs**

Resources & Next steps

❖ Download free trial version

- ❖ http://www.attunity.com/change_data_capture_for_ssis
[Download a step-by-step tutorial](#) (same demo we just did)

❖ Schedule a one-on-one 'Jump-start' session

- ❖ 45 minutes. On your environment.
- ❖ We'll walk you through the tutorial example

❖ Contact us:

- ❖ richard.thomas@attunity.com
- ❖ sales_ssis@attunity.com



Q & A



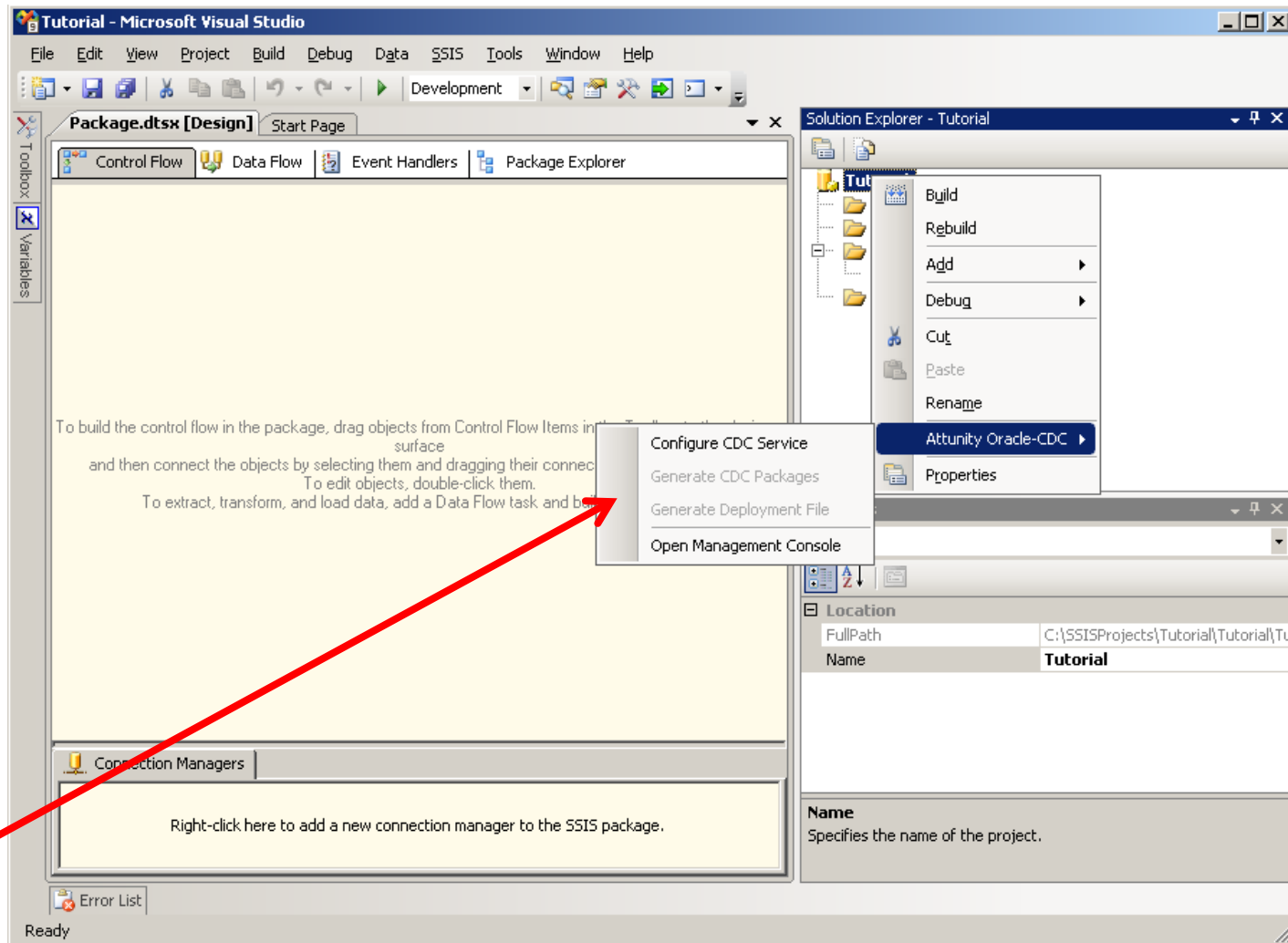


Thank You

www.attunity.com

DEMO SCREEN-SHOTS

Built into Business Intelligence Developer Studio



CDC Service Configuration Wizard

Welcome

Welcome

Oracle Connection

CDC Service

Select Tables

Oracle Logging

Deployment

Welcome to CDC Configuration Wizard



< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - CDC Service Configuration Wizard



Oracle Connection

Configure the connection properties for the Oracle source database.

- Welcome
- Oracle Connection**
- CDC Service
- Select Tables
- Oracle Logging
- Deployment

Oracle Connect String.
Such as: host:[port][/]service name

//ysss3:1521/xs

Oracle Authentication

User Name: system

Password: ●●●●●●

Default Tables Owner (Case Sensitive)

HR

Test Environment

< Previous

Next >

Finish

Cancel

Test Environment

Description	Status	Details
Oracle connection	✔ Success	Details...
Required privileges	✔ Success	Details...
Oracle version	✔ Success	Details...
Supplemental logging	✔ Success	Details...
Database compatibility version	✔ Success	Details...
Archive mode	✔ Success	Details...

Close

Attunity Oracle-CDC for SSIS - CDC Service Configuration Wizard



CDC Service

Configure the CDC Service properties.

- Welcome
- Oracle Connection
- CDC Service**
- Select Tables
- Oracle Logging
- Deployment

Port

Service Port

1110



This port must be also available on the production machine.

Change records expiration period (in hours):

48

Transaction timeout (in seconds):

3600

Language

English US

< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - CDC Service Configuration Wizard



Select Tables

Select the Oracle tables to be included in the change data capture.

Welcome

Oracle Connection

CDC Service

Select Tables

Oracle Logging

Deployment

Available Tables (Not Included):

COUNTRIES
DEPARTMENTS
JOB_HISTORY
LOCATIONS
REGIONS

Included Tables:

EMPLOYEES
JOBS



Refresh

< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - CDC Service Configuration Wizard



Oracle Logging

Apply the following scripts on your Oracle database to ensure that proper logging is configured.

Welcome

Oracle Connection

CDC Service

Select Tables

Oracle Logging

Deployment

The following SQL/PL commands are run from your SQL*Plus terminal:

```
ALTER TABLE "HR"."EMPLOYEES" LOGGING;  
ALTER TABLE "HR"."EMPLOYEES" drop supplemental log group "ATTU_E0E6B763_gr0";  
ALTER TABLE "HR"."EMPLOYEES" ADD supplemental log group  
"ATTU_E0E6B763_gr0"("EMPLOYEE_ID","FIRST_NAME","LAST_NAME","EMAIL","PHONE_NUMBER","HI  
RE_DATE","JOB_ID","SALARY","COMMISSION_PCT","MANAGER_ID","DEPARTMENT_ID") ALWAYS;
```

```
ALTER TABLE "HR"."JOBS" LOGGING;  
ALTER TABLE "HR"."JOBS" drop supplemental log group "ATTU_CABBC606_gr0";  
ALTER TABLE "HR"."JOBS" ADD supplemental log group  
"ATTU_CABBC606_gr0"("JOB_ID","JOB_TITLE","MIN_SALARY","MAX_SALARY") ALWAYS;
```

Run Scripts

Save As ...

Copy

< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - CDC Service Configuration Wizard



Deployment

Click 'Deploy' to deploy the CDC Service.

Welcome

Oracle Connection

CDC Service

Select Tables

Oracle Logging

Deployment

Description	Status	Details
Save data	✓ Success	Details...
Deploy solution	✓ Success	Details...
Import source server data	✓ Success	Details...

Now that a CDC Service is defined you can start to build CDC and Full Load packages using the Package Builder Wizard.

[i Activate CDC Service](#)

Note that processing does not start until the service is activated.
The service can be activated later from the Attunity Oracle-CDC for SSIS Management Console.
Before activating the service, the logging scripts should be executed.

< Previous

Next >

Finish

Cancel

CDC Package Builder Wizard

Welcome

Welcome

SQL Server Connection

Table Mapping

Group Definition

Package Creation Plan

Create Packages

Welcome to CDC Package Builder Wizard



< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - Package Builder



SQL Server Connection

Configure the connection properties for the SQL Server target database.

Welcome

SQL Server Connection

Table Mapping

Group Definition

Package Creation Plan

Create Packages

Destination Server Name:

SERVER2003

Refresh

Log on to the server

- Use Windows Authentication
- Use SQL Server Authentication

User Name:

Password:

Database Name:

tempdb

Refresh

Table Schema:

dbo (default)

Test Connection

< Previous

Next >

Finish

Cancel



Table Mapping

Map source tables to destination tables. Click 'Edit' to map columns, define primary keys and configure new target tables.

- Welcome
- SQL Server Connection
- Table Mapping**
- Group Definition
- Package Creation Plan
- Create Packages

		Source	Destination	PK	
▶	<input checked="" type="checkbox"/>	EMPLOYEES	EMPLOYEES	<input checked="" type="checkbox"/>	Edit...
	<input checked="" type="checkbox"/>	JOBS	JOBS	<input checked="" type="checkbox"/>	Edit...

Map All Tables

Clear Mapping

Refresh Source Data

< Previous

Next >

Finish

Cancel



Group Definition

A group called 'Default' is created that includes all tables. You can rename it or create additional groups.

Welcome

SQL Server Connection

Table Mapping

Group Definition

Package Creation Plan

Create Packages

Groups:

Tables:

Unassigned Tables

Default

+
X

EMPLOYEES
JOBS

↑
↓

< Previous

Next >

Finish

Cancel

Attunity Oracle-CDC for SSIS - Package Builder



Package Creation Plan

Define the action to perform on each group.

Welcome

SQL Server Connection

Table Mapping

Group Definition

Package Creation Plan

Create Packages

Group Name	Status	Action	CDC Package	Full Load Package
▶ Default	New	Create	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Advanced...

< Previous

Next >

Finish

Cancel



Create Packages And Destination Tables

Click 'Create' to create or update the packages, and related destination tables.

- Welcome
- SQL Server Connection
- Table Mapping
- Group Definition
- Package Creation Plan
- Create Packages**

Description	Status	Details
Creating destination table JOBS	Not Started	Details...
Creating destination table EMPLOYEES	Not Started	Details...
Creating CDC package for Default	Not Started	Details...
Creating full load package for Default	Not Started	Details...
Saving data	Not Started	Details...

< Previous

Next >

Create

Cancel



Create Packages And Destination Tables

Click 'Create' to create or update the packages, and related destination tables.

- Welcome
- SQL Server Connection
- Table Mapping
- Group Definition
- Package Creation Plan
- Create Packages**

Description	Status	Details
Creating destination table JOBS	✔ Success	Details...
Creating destination table EMPLOYEES	✔ Success	Details...
Creating CDC package for Default	✔ Success	Details...
Creating full load package for Default	✔ Success	Details...
Saving data	✔ Success	Details...

Package creation completed.
 The packages can be found under SSIS Packages in the Solution Explorer.
 Note: You should run the Full Load packages before running the CDC packages.

Generated Packages

Tutorial - Microsoft Visual Studio

File Edit View Project Build Debug Data SSIS Tools Window Help

Development

Default_FullLoad.dtsx [Design] Package.dtsx [Design] Start Page

Control Flow Data Flow Event Handlers Package Explorer

```
graph TD; A[FullLoad Sequence] --> B[Initialize Full Load Process...]; B --> C[Truncate Tables]; C --> D[Full Load Data Flow]; D --> E[Finalize Full Load Process...];
```

Connection Managers

- CDC ADO.NET Source DB Connection
- FileLogProviderConnection
- Full Load ADO.NET Source DB Connection
- Full Load ADO.NET Target DB Connection
- Full Load OLEDB Source DB Connection
- Full Load OLEDB Target DB Connection

Error List

Ready

Solution Explorer

- Tutorial
 - Data Sources
 - Data Source Views
 - SSIS Packages
 - Package.dtsx
 - Default_CDC.dtsx
 - Default_FullLoad.dtsx
 - Miscellaneous

Properties

Default_FullLoad Package

Identification

CreationDate	5/19/2009 10:17 AM
CreatorComputerName	SERVER2003
CreatorName	Administrator
Description	The package for full load
ID	{52CC84F3-2231-42DF-88C...
Name	Default_FullLoad
PackageType	DTSDesigner100

Misc

Configurations (Collection)

Name

Specifies the name of the object.

Tutorial - Microsoft Visual Studio

File Edit View Project Build Debug Data Format SSIS Tools Window Help

Development

Default_FullLoad.dtsx [Design] Package.dtsx [Design] Start Page

Control Flow Data Flow Event Handlers Package Explorer

Data Flow Task: Full Load Data Flow

```
graph TD; JFS[JOBS Full Load Source] --> JFD[JOBS Full Load Destination]; EFS[EMPLOYEES Full Load Source] --> EFD[EMPLOYEES Full Load Destination];
```

JOBS Full Load Source

JOBS Full Load Destination

EMPLOYEES Full Load Source

EMPLOYEES Full Load Destin...

Connection Managers

- CDC ADO.NET Source DB Connection
- Full Load ADO.NET Source DB Connection
- Full Load OLEDB Source DB Connection
- FileLogProviderConnection
- Full Load ADO.NET Target DB Connection
- Full Load OLEDB Target DB Connection

Error List

Ready

Solution Explorer

- Tutorial
 - Data Sources
 - Data Source Views
 - SSIS Packages
 - Package.dtsx
 - Default_CDC.dtsx
 - Default_FullLoad.dtsx
 - Miscellaneous

Properties

Full Load Data Flow Task

ForcedExecutionValue	0
ForcedExecutionValueType	Int32
ForceExecutionValue	False

Identification

Description	Data Flow that handles the
ID	{0D440374-26D4-4A02-A14F-07}
Name	Full Load Data Flow

Misc

BLOBTempStoragePath	
BufferTempStoragePath	

Name

Specifies the name of the object.

Tutorial - Microsoft Visual Studio

File Edit View Project Build Debug Data Format SSIS Tools Window Help

Development

Default_CDC.dtsx [Design] Default_FullLoad.dtsx [Design] Package.dtsx [Design] Start Page

Control Flow Data Flow Event Handlers Package Explorer

Toolbox Variables

CDC Sequence

```

    graph TD
      A[Begin Transaction] --> B[Transaction Sequence]
      subgraph B [Transaction Sequence]
        C[Initialize Change Processing Task] --> D[CDC Data Flow]
        D --> E[Finalize Change Processing Task]
      end
      B --> F[Commit Transaction]
      B --> G[Rollback Transaction]
  
```

Connection Managers

Error List

Ready

Solution Explorer

- Tutorial
 - Data Sources
 - Data Source Views
 - SSIS Packages
 - Package.dtsx
 - Default_CDC.dtsx
 - Default_FullLoad.dtsx
 - Miscellaneous

Properties

Default_CDC Package

ForcedExecutionValueType	Int32
ForceExecutionValue	False
Identification	
CreationDate	5/19/2009 10:17 AM
CreatorComputerName	SERVER2003
CreatorName	Administrator
Description	The package for capture data ch
ID	{B8F24B17-E6A2-43A1-BC0
Name	Default_CDC
PackageType	DTSDesigner100
Misc	
Name	
Specifies the name of the object.	

Tutorial - Microsoft Visual Studio

File Edit View Project Build Debug Data Format SSIS Tools Window Help

Development

Default_CDC.dtsx [Design]* Default_FullLoad.dtsx [Design] Package.dtsx [Design] Start Page

Control Flow Data Flow Event Handlers Package Explorer

Data Flow Task: CDC Data Flow

```

    graph TD
      subgraph Left_Path [EMPLOYEES Path]
        E1[EMPLOYEES Change Source] --> E2[EMPLOYEES Change Desti...]
        E2 --> E3[Table Change Destination Error Output  
apply changes to target table EMPLOYEES]
        E3 --> E4[EMPLOYEES Error Output]
      end
      subgraph Right_Path [JOBS Path]
        J1[JOBS Change Source] --> J2[JOBS Change Destini...]
        J2 --> J3[Table Change Destination Error Output]
        J3 --> J4[JOBS Error Output]
      end
  
```

Connection Managers

- CDC ADO.NET Source DB Connection
- EMPLOYEES Error Output Connection
- JOBS Error Output Connection
- CDC ADO.NET Target DB Connection
- FileLogProviderConnection

Error List

Ready

Solution Explorer

- Tutorial
 - Data Sources
 - Data Source Views
 - SSIS Packages
 - Package.dtsx
 - Default_CDC.dtsx
 - Default_FullLoad.dtsx
 - Miscellaneous

Properties

CDC Data Flow Task

Identification

Description	Data Flow that handles the i
ID	{6E88D616-E3E5-4BE4-B0B1-16}
Name	CDC Data Flow

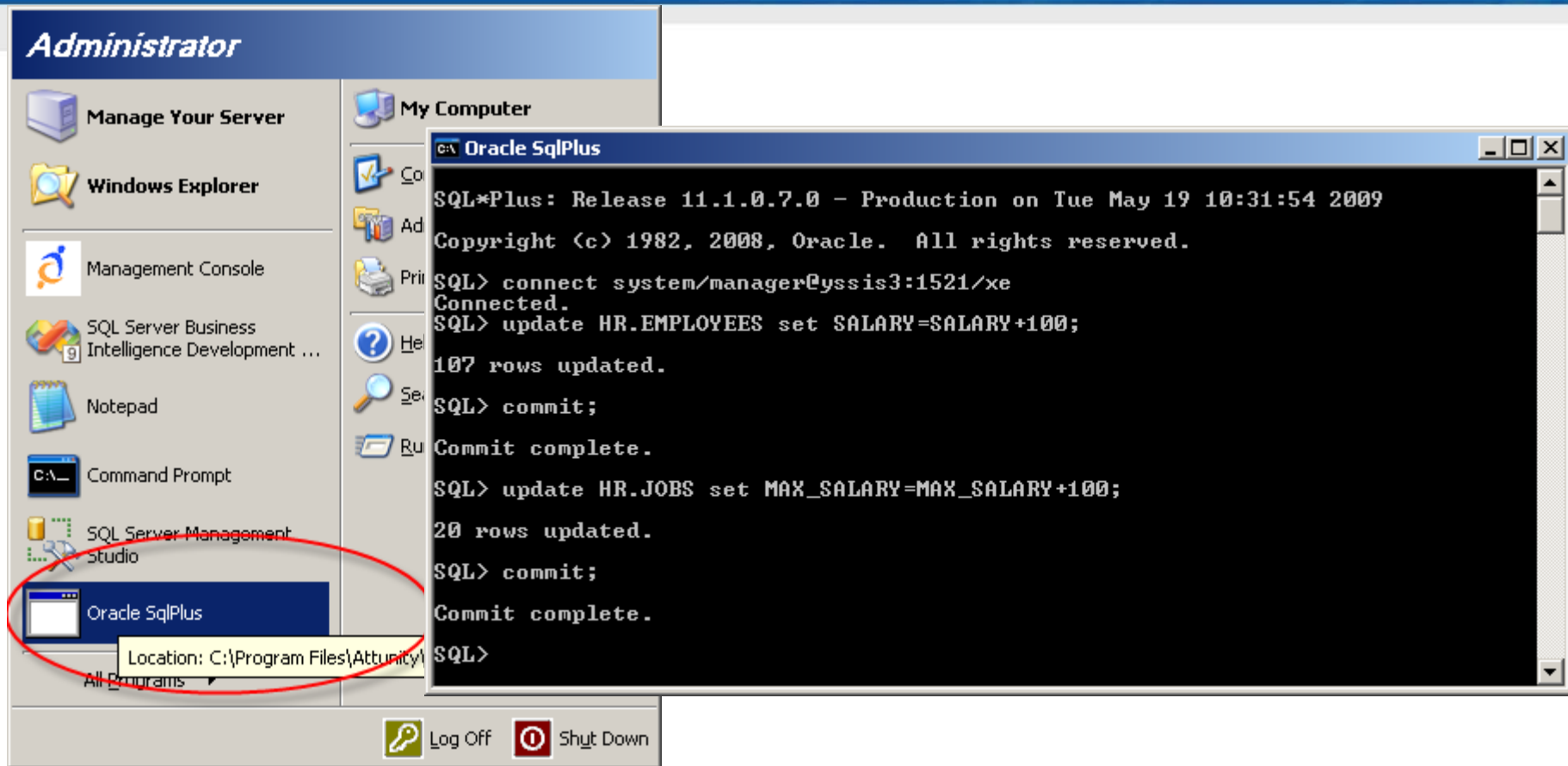
Misc

[EMPLOYEES Error Output],[He	
[JOBS Error Output],[Header]	
BLOBTempStoragePath	
BufferTempStoragePath	
DefaultBufferMaxRows	10000
DefaultBufferSize	10485760

Name

Specifies the name of the object.

Use Oracle Client to make changes



The image shows a Windows Administrator console window. On the left, the 'All Programs' list includes 'Oracle SqlPlus', which is circled in red. A tooltip for 'Oracle SqlPlus' shows the location: 'C:\Program Files\Attunity\'. The main area of the console shows a terminal window titled 'C:\ Oracle SqlPlus'. The terminal output is as follows:

```
C:\ Oracle SqlPlus
SQL*Plus: Release 11.1.0.7.0 - Production on Tue May 19 10:31:54 2009
Copyright (c) 1982, 2008, Oracle. All rights reserved.

SQL> connect system/manager@ysss3:1521/xe
Connected.
SQL> update HR.EMPLOYEES set SALARY=SALARY+100;
107 rows updated.
SQL> commit;
Commit complete.

SQL> update HR.JOBS set MAX_SALARY=MAX_SALARY+100;
20 rows updated.
SQL> commit;
Commit complete.

SQL>
```