

Product Evaluator's Guide

Pervasive Data Integration Platform

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PURPOSE OF THIS GUIDE

For first-time evaluators of the Pervasive Data Integration Platform

- Provide baseline introduction of data integration concepts
- Brief orientation for different types of solution development and delivery modes
- Introduction to the design and production platforms
- Getting Started with the Evaluation – Overview and Syllabus for tutorials for the two most-used design tools: Map Designer and Process Designer

PERVASIVE: A COMPREHENSIVE DATA INTEGRATION PLATFORM

Every enterprise, no matter the size, has information management needs: compliance requirements (SOX, HIPAA), achieving high level views of the business (BI, MDM), consolidating data segregated in application silos (mergers and acquisitions). And often those needs call for a data integration solution or component. Data integration projects offer the potential to unify business data and enhance the value of information stored in a variety of sources: relational databases, EDI, flat files, and XML documents. To remain competitive, companies must seamlessly connect with customers, suppliers, and internal business units – frequently these groups store and use data in different formats. A comprehensive Data Integration Platform delivers a wide range of tools and data services to address the ever-changing variety of application data and integration projects. To be effective for basic as well as complex integration projects, a comprehensive data integration platform must also provide flexibility and agility for multiple solution deployment modes.

Because of vendor innovation and “big picture” understanding by customers, data integration is becoming a necessary aspect of IT solutions. Internally, companies must solve many business problems with IT systems that will require a data integration solution or component. Likewise, externally-focused application and services vendors also need agile embedded data integration solutions to ensure adoption of their products and enable their customers to make the best use of the applications

Another aspect of a data integration platform is choosing the method used to provide the data integration solution. The choice often comes down to hand-coding or using data integration software (the classic “build versus buy” proposition). Productivity gains are a big reason that many companies use data integration software. In addition to saving time, the data integration software platform provides common, repeatable functions and features that support data integration projects, so that companies don’t have to “reinvent the wheel” every time they do a new project.

Using a data integration platform means that you have all of the integration components in one place, documented and managed for control. With hand coding, you have code all over the place, with little management and little documentation. Productivity improves with each project since the same platform is used over and over, with reusability of previously created data integration components.

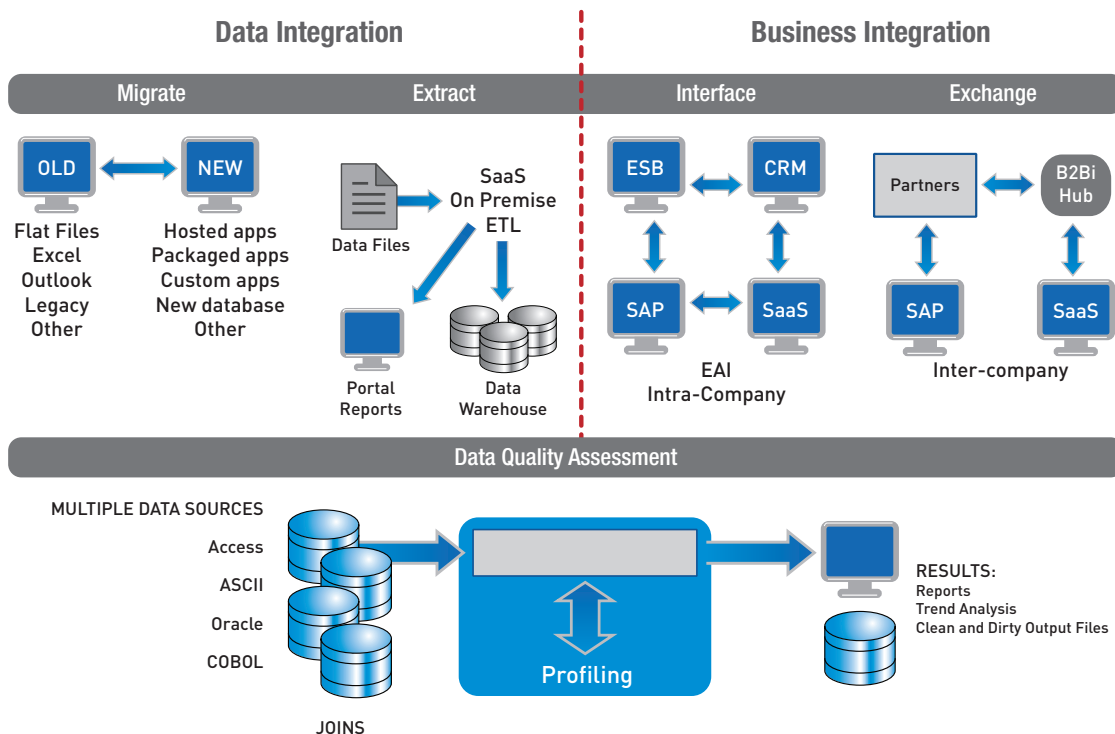
Certain sorts of data integration challenges demand a software approach more than others. While a one-time data aggregation project could be hand-coded, any solutions that require frequent updates and synchronizations of data are right for data integration platforms.

For internal systems accessed by many business users, or applications that will be expanded over time to encompass more data sources, it makes sense to use a data integration platform to create solutions. For ISVs that need data integration solutions for their applications or hosted / SaaS solutions, embedding components created by a comprehensive data integration platform is remarkably cost effective.

While there is quantitative ROI for many solutions created with data integration software, there are significant qualitative cost benefits as well. The “soft” benefits, particularly regarding reusability and transparency of design, are often compelling enough to encourage inclusion of data integration platforms for both internal IT systems and for applications of all sorts.

Data integration solutions include:

- Integration and synchronization of backend systems
- ETL for data warehouses
- B2B exchanges particularly for supply chain and for processing transactions for backend systems
- Migrations from legacy applications
- Extraction of data from unstructured content sources and integration with other data sources
- Data integration services for Service-Oriented Architecture infrastructures
- Profiling data sources to identify “dirty data” and reduce risk of inclusion in production systems
- Industry specific solutions for healthcare and financial services
- Embedded components for all of the above for on-premise applications and hosted services/SaaS



Data Integration scenarios that are addressed with Pervasive’s data integration platform

ADAPTERS – DATA AND APPLICATIONS

The Pervasive Data Integration Platform supports more than 150 factory-supplied adapters. Most of the Pervasive data adapters have been written to take advantage of native APIs and industry standards. Many of the adapters are available for multiple platforms.

Database adapters support a range of modes from client/server access, local database access, multimode where a single data stream can be rapidly spread across multiple tables in a target database, and mass-insert for high-speed bulk loading of data.

File

Access Access 97 Access 2000 Access XP Alpha Four ASCII (Delimited) ASCII (Delimited) Join ASCII (Fixed)	Clarion Clipper CLF Webserver DataEase DataFlex DJ Document Schemas DJ Log File Data dBASE II, III (III+)	dBASE IV dBASE V (IDAPI) Dialog DIF Enable Excel 95, 97 Excel 2000 Excel XP	Folio Flat File Foxbase FoxPro LDIF Lotus 1-2-3 Lotus Notes Lotus Notes 5 Lotus Notes Structured Text	Lotus Works Mac ASCII Delimited Magic PC MAILERS+4 (dBASE) Microsoft Word (Mail Merge) Paradox v5 (IDAPI) Quattro Pro Windows v5 Rich Text Format (RTF)	Unicode (Delimited) Unicode (Fixed) WordPerfect 6.0 (Mail Merge) Wordstar (Mail Merge) WordPerfect 4.2/5.0 Visual FoxPro Visual dBASE 5.5
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Database

Oracle 7.x Oracle 8.x Oracle 8.x Multimode Oracle 9i Oracle 9i Multimode Oracle 10g Oracle Direct Path Oracle SQL Loader Pervasive.SQL Pervasive.SQL v8 Pervasive.SQL v8 Multimode Pervasive PSQL v9 Pervasive PSQL v10 PostgreSQL PostgreSQL (ODBC 3.x)	Btrieve v5 Btrieve v6 Btrieve v7 Btrieve v8 CA dB-Fast C-ISAM Cloudscape CWM DB2 7.2 Univ. DB DB2 7.2 Univ. DB Multimode DB2 Loader DB2 UDB Mass Insert DB2 (ODBC) DB2 Univ. DB DB2 Univ. DB Multimode	eXcelon eXcelon XIS 3.0 Hitachi Hi-RDB IDAPI Informix DB Loader Informix (ODBC) Informix Online DS Informix/SE Ingres (ODBC 3.x) Interbase(IDAPI) JDBC MUMPS (ODBC) MySQL NonStop SQL/MX ODBC 3.x	ODBC 3.x Mass Insert ODBC 3.x Multimode ODBC 3.5 ODBC 3.5 Multimode RBase 4.5 (ODBC) Red Brick Scalable SQL SQLBase SQL Script SQL Server 6.x SQL Server 7 Mass Insert SQL Server 7 (OLEDB) Multimode SQL Server 7 (OLEDB) SQL Server 2000	SQL Server 2000 Mass Insert SQL Server 2000 Multimode SQL Server 2005 SQL Server 2005 Mass Insert SQL Server 2005 Multimode SQL Server BCP SQL Server Mass Insert SQL Server (ODBC) Sybase 11.x Sybase 11.x Mass Insert Sybase 11.x Multimode Sybase 12.x Sybase 12.x Mass Insert Sybase 12.x Multimode Sybase BCP	Sybase (ODBC) Sybase SQL Anywhere Sybase SQL Anywhere 6 Sybase SQL Mass Insert Sybase SQL 11 Sybase SQL 11 Multimode Teradata (Fastload) Velocis (ODBC 3.x) Watcom SQL v5 Watcom SQL (ODBC)
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Application

AccountMate ACT! for Windows ADABAS (NatQuery) Apache CLF Champion Acct. CYMA Acct. GoldMine	Great Plains DOS Great Plains UNIX/Mac Navision Financials Macola Acct. Market Force Microsoft Dynamics CRM Microsoft Dynamics GP	Microsoft IIS ELF NetSuite Oracle Applications Oracle Siebel CRM On Demand PayChex DJF Peachtree Acct.	Personal Librarian Pivotal CRM Platinum Acct. RealWorld Acct. Remedy ARS Sage CRM SalesLogix Sage MAS 90/200	Sales Ally Salesforce SAP IDoc SAP BAPI SAS SBT Acct. Solomon Acct.	SPLUS SPSS Statistica SYSTAT USMARC
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Technology

BizTalk XML Email Email Attachments Erwin FF Queue File Transfer Builder	File Folder FTP HTTP HTTPS HTML JMS	LDAP MSMQ (Extractor) MSMQ (Fixed ASCII) MSMQ (XML) MQSeries (Extractor) MQSeries (Fixed ASCII)	MQSeries (XML) Oracle AQ Oracle BPPEL Progress Sonic ESB SGML SOAP	TCP/IP URL URI WebSphere XML XML Schema	XML DTD XML XDR
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Legacy

ACUCOBOL (ODBC 3.x) ACUCOBOL-GT v7 BAF Binary	Binary Line Sequential COBOL 01 COBOL Copybook COBOL Flat File	C-tree Plus C-tree 4.3 Fujitsu COBOL ISAM	Micro Focus COBOL QSAM Sequential Binary Tape Drive Sequential	VSAM Variable Sequential (MVS) Variable Sequential (Record-V UniKix)	Variable Sequential (SyncSort) Variable Sequential (User Defined)
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B2B

ACORD EDI (EDIFACT) EDI (X12)	HCFA 1500-NSF HIPAA HL7	HR-XML MIB NCPDP	NSF SWIFT Text (Delimited – EDI)	Text (Delimited – EDIFACT) Text (Delimited – HL7) TRADACOM	UB92-NSF
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PERVASIVE DATA INTEGRATION AND SOLUTION DELIVERY MODES

IT AND ENTERPRISE APPLICATION DEVELOPMENT

Pervasive Data Integration Platform tools have long been utilized by traditional IT departments for internal software development requirements. The Pervasive Data Integration Platform is a valuable part of any software ecosystem for many enterprises, from mid-sized companies on to larger corporations.

There has been increased activity in the availability of developer tools to work with agile development environments and to take advantage of open source productivity tools. Many applications for internal use are now browser-based, as traditional software development assimilates new services from the Web. The main point is to speed up the creation of much-needed business systems, while easing the load on IT, whether it is through the enablement of business users to create their own applications as composites of existing small apps and web services, or the proliferation of the same methodology adopted by IT and enterprise developers. Open Source developer platforms include Eclipse, AJAX, Java, Linux. The Pervasive Data Integration Platform has kept pace with new developer trends with options for just about any project architecture.

Vendors are also opening up application platforms for extensibility. SaaS vendor Salesforce.com has established AppExchange as the self-billed first on-demand application-sharing service. Mid-Market ERP and CRM vendor NetSuite has released SuiteFlex, a development platform that enables the creation of third-party vertical applications within NetSuite, as well as end-to-end business process customization for any end-user company. Here again, IT and Enterprise developers will encounter extensive data integration needs working through application platform extensibility and should look to the Pervasive Data Integration Platform for exactly what they need to complete extensibility projects.

For any new developer platform trends, Pervasive Data Integration will continue to be an important and agile part of any new software ecosystem. A key part of composite solutions is the existence of a service-oriented architecture as a backbone for the enterprise. Pervasive Data Integration has the track record that proves its clean integration for such architectures. Reusability, flexibility and ease of integration with overall solution requirements make the Pervasive Data Integration Platform a powerful partner for any IT solution development project.

Embedded integration options for IT and Enterprise application development are essential for enabling the use of so many new development options. Data integration components can help simplify building internal solutions by developers for any company. The Pervasive Data Integration Platform has one of the leading embeddable data integrations capabilities in the industry.

EMBEDDED DATA INTEGRATION FOR ISV'S WITH ON-PREMISE APPLICATIONS OR SAAS SOLUTIONS

Vendors offering software solutions have many delivery mode options available to them, from traditional licensed on-premise applications to hosted and SaaS (software as a service) subscription offerings. Frequently vendor software applications and services also have serious data integration needs to deliver a complete solution to their customers, whether to migrate from legacy applications or to synchronize data with other backend systems.

The customers of application vendors always consider how easily new applications will integrate into their current infrastructure, when deciding which technology solutions to buy. The solution provider who offers the best methodology will likely win the business. As Robert Anderson of Gartner Group noted, "A new market is emerging that can deliver cost-effective and easy-to-use integration solutions rather than the older complex and high-priced ones that have traditionally reigned. ISVs, ASPs and integrators can deliver competitive advantage by taking advantage of embedding these solutions in their offerings."

Pervasive Data Integration provides a comprehensive solution development platform to meet the many needs for data integration within applications and services: easing migration from legacy applications, helping customers integrate applications within the enterprise, trading data in B2B exchanges, providing integration services in SOA implementations.

An embedded data integration capability must be lightweight enough to fit neatly within an application, both technically and economically. Agile customer solutions demand a single embeddable and customizable integration component that addresses size, scope and the strategic nature of the integration task at hand. It must be flexible, able to respond quickly to the changes that inevitably happen. Pervasive Data Integration fulfills those requirements for application vendors of all sorts.

SERVICES DELIVERED BY SYSTEMS INTEGRATORS AND SOLUTION PROVIDERS

As with IT developers, systems integrators and solution providers have discovered the invaluable power of the Pervasive Data Integration Platform when creating applications for their clients. These businesses also have benefited from active partnerships with Pervasive to deliver exactly what their clients need for data integration, no matter the solution deployment mode or the complexity of integration requirements.

Businesses providing services to other businesses require tools that promote ease of use and fast but reliable implementations, and that are adaptable to a wide range of project needs. Teams responsible for data integration projects want to control costs, shorten timelines, and minimize risks. Changing business requirements, the need to consume data from large numbers of internal and external sources, and overcommitted developer resources pose significant challenges when crafting solutions for clients.

The ability to handle large and growing volumes of diverse data through parallel processing on low-cost commodity hardware is essential for an increasing number of organizations. Pervasive Data Integration lets organizations start with affordable, defined integration scenarios, then rapidly, quickly and economically scale processes up into large, diverse environments. Pervasive Data Integration helps organizations adeptly manage real-time or batch integration in any sort of production environment.

Following the new trends of on-premise application and SaaS vendors, systems integrators and solution providers have the freedom to implement Pervasive Data Integration processes in many different sorts of modes: as a stand-alone tool to take to each client engagement, embedded in other solutions or services, and in local or distributed processing architectures. Systems integrators can use the Pervasive data integration platform to decrease development cost while speeding up time to solutions that call for data integration components.

At client sites, Pervasive Data Integration is available for ad hoc situations that arise during project implementations of all sorts. Once a team of systems integrators or solution providers gain experience with the Pervasive Data Integration Platform, the value of the Platform geometrically increases in terms of reusability, versatility, ease of solution creation, speed to each new solution.

Certain repeatable processes created by systems integrators eventually became productized as applications. The option to embed data integration components in such productized applications greatly increases the value of such composite solutions to the customers of the system integrator. The business of many solution providers and systems integrators is designing and implementing integrated solutions that dramatically improve their customers' ability to achieve business goals. Systems integrators who adopt the Pervasive Data Integration Platform deliver top-notch end-to-end solutions to their customers.

PERVASIVE DATA INTEGRATION PLATFORM – PRODUCTS

- Pervasive Data Integrator – data migrations and extractions, business data interfaces and exchanges
- Pervasive Data Profiler – extend and control the value of data



Suited to both large-scale production systems and smaller, project-oriented data movement tasks, Pervasive Data Integrator Professional Edition enables access to virtually any data – including unstructured data. With Pervasive Data Integrator, transform data sources, then load the output into operational data stores, data warehouses, data marts or other target systems. Pervasive Data Integrator is designed to deliver a flexible solution that can automate any data movement task on an event-driven or scheduled basis.

SCALABLE ETL AND REAL-TIME DATA INTEGRATION

Packaged with functionality for aggregating multiple sources of data for quick-hitting data marts as well as high-performance data warehouse loading, the Pervasive Data Integrator development environment enables the developer to quickly define and maintain even the most complex automated Extract, Transform and Load (ETL) projects.

Key features include:

- Integration of data from multiple applications and operational data stores
- A unified toolset for managing a wide array of data integration projects
- Graphical mapping interface to shorten learning curves, speed time to results and reduce project costs
- Ability to handle the most complex transformation requirements without the need for a user exit to call external code
- Support for design and packaging of multi-step processes for automated execution by the Pervasive Integration Engine
- Logging/rollback in the event a process ends unexpectedly
- “Upsert” to speed efficiencies when inserting/updating data during high-speed operations
- Multi-threaded integration engines for scaling large data load processing across multiple CPUs within narrow timeframes
- Distributed model allowing integration processes to reside at the points of integration, creating a scalable, flexible integration infrastructure
- Rules definition for complex data aggregation and transformation, allowing one-pass writing to multiple targets
- Connectivity to all major databases and bulk loaders, along with mass insert and multi-table writers
- Connectivity to common CRM, ERP and other applications
- Connectivity to legacy binary and COBOL sources

The focus of Pervasive Data Integrator Universal Edition is on application and message-based integration projects. With direct connectivity to enterprise applications and legacy data stores, along with support for industry data exchange standards, Pervasive Data Integrator Universal Edition has an infrastructure built for message-based or transaction-based processing. A graphical design environment allows developers to increase their productivity while solving complex integration challenges within business processes and data flows.

Whether designing integration processes that tie internal business applications together or automate electronic data exchanges between trading partners, Pervasive Data Integrator Universal Edition includes numerous foundation features that simplify creating and managing flexible integration solutions.

Key capabilities include:

- Real-time, event-driven and message-based integration
- Continuous integration
- Native connectivity
- Point-to-point application integration
- Legacy conversion
- Business process design
- Email queue for auto-notifications

PERVASIVE DATA INTEGRATOR — APPLICATION INTEGRATION

CRM and ERP Integration through On-Premise Application and SaaS Solution Delivery Modes

Pervasive application integration solutions offer support for Enterprise Service Bus (ESB), Service Oriented Architecture (SOA), and point-to-point integration architectures. Pervasive solutions are ideal for integrating Customer Relationship Management (CRM), accounting data, and Enterprise Resource Planning (ERP) — including leading Software as a Service (SaaS) offerings.

Pervasive application integration solutions feature real-time, event-driven, and message-based infrastructure for integration of multiple applications, both within and outside the organization. Design and implement a messaging solution to meet solution needs, build message queue on-ramps and off-ramps for any ESB, or enable point-to-point exchange of XML, SOAP, text, or other message formats between applications. Pervasive application integration solutions are transport-independent and interface with IBM WebSphere, MSMQ, Oracle AQ, or any JMS-compliant queue. Pervasive solutions support “listening” to file folders and FTP folders for the arrival of data, and can run as a service for event-driven integration.

Key capabilities include:

- Process Designer infrastructure that supports IBM WebSphere, MSMQ, Oracle AQ, and any JMS-compliant queue and is aligned to create and manage integrations within business-process flow
- Real-time, event-based, and continuous processing
- Distributed integration model that allows integration processes to reside at the points of integration, creating a scalable and flexible integration infrastructure for use in SOA
- High-speed enterprise database connectivity, including multi-mode and mass-insert options
- Validation of the accuracy of messages cycling between applications
- Ability for all data objects and messages to be handled in buffered memory for high-performance processing

PERVASIVE DATA INTEGRATOR — INTEGRATING B2B GATEWAYS

Pervasive Data Integrator Universal Edition fully supports the rapid design and maintenance of processes that translate electronic documents and manage their flow among information systems, including systems of trading partners.

Key capabilities include:

- Sophisticated message processing that allows electronic documents to be quickly read, validated, and transformed according to the process design
- Standard schemas available for EDI, EDIFACT, FIX, ACORD XML, HIPAA, and others
- Rich connectivity to applications and databases, industry trade standards, and any XML format
- Message queue and file folder queue components for real-time processing, as well as FTP queue “listener” for data arrival
- Process Designer message integration for continuous and scheduled document retrieval from file and FTP folders
- Document Schema Designer simplified modification of standard schema to meet requirements defined by trading partner agreements

PERVASIVE DATA INTEGRATOR — EXTENDING THE ENTERPRISE SERVICES BUS (ESB)

Especially suited as an extensible service container for message-driven ESB and SOA environments, Pervasive Data Integrator Universal Edition integration processes enable developers to quickly define and orchestrate message processing and routing between applications

Key features include:

- Rich data connectivity enabling information flow between a wide range of enterprise applications, including connectors for SAP and other major ERP systems
- More than 150 adapters with options for multi-table and mass insert to a wide range of enterprise class applications and databases including Oracle, DB2, Sybase, and SQL Server
- Adapter and metadata support for industry standard data exchange formats such as EDI, XML, and HIPAA
- Remote invocation of integration processes using Web Services, JCA, Message-Driven Bean, and Java API standards
- Java component framework, providing developers with high extensibility
- Process Designer infrastructure supporting IBM WebSphere, MSMQ, and any JMS-compliant queue
- Real-time, event-driven, and continuous processing
- Distributed integration model that allows integration processes to reside at the points of integration, thereby creating a scalable and flexible integration infrastructure for use in ESB or SOA projects
- Validation of messages cycling between applications
- In-memory handling of data objects and messages enabling high-performance processing
- Web-based management console support using Pervasive Integration Manager™



Pervasive Data Profiler is available as a complementary and essential enhancement to Pervasive Data Integrator for constant monitoring of data in any size enterprise to identify data quality risks. Pervasive Data Profiler also functions as a stand-alone application that may be used with any other data management tools and development initiatives.

Pervasive Data Profiler works to unlock the secrets of content to identify data that is inaccurate, incomplete or missing. The right time to find “dirty data” for any data-intensive projects is during project design phase. Data Profiler can be utilized continuously during project design time, and then incorporated into production processes to test data quality. Data problems identified during project design phases cost considerably less to remediate than if found later in project testing. And, of course, when “bad” data is carried through production processes, the cost can be tremendous: both in direct remediation costs and in loss of business due to decisions made against faulty data.

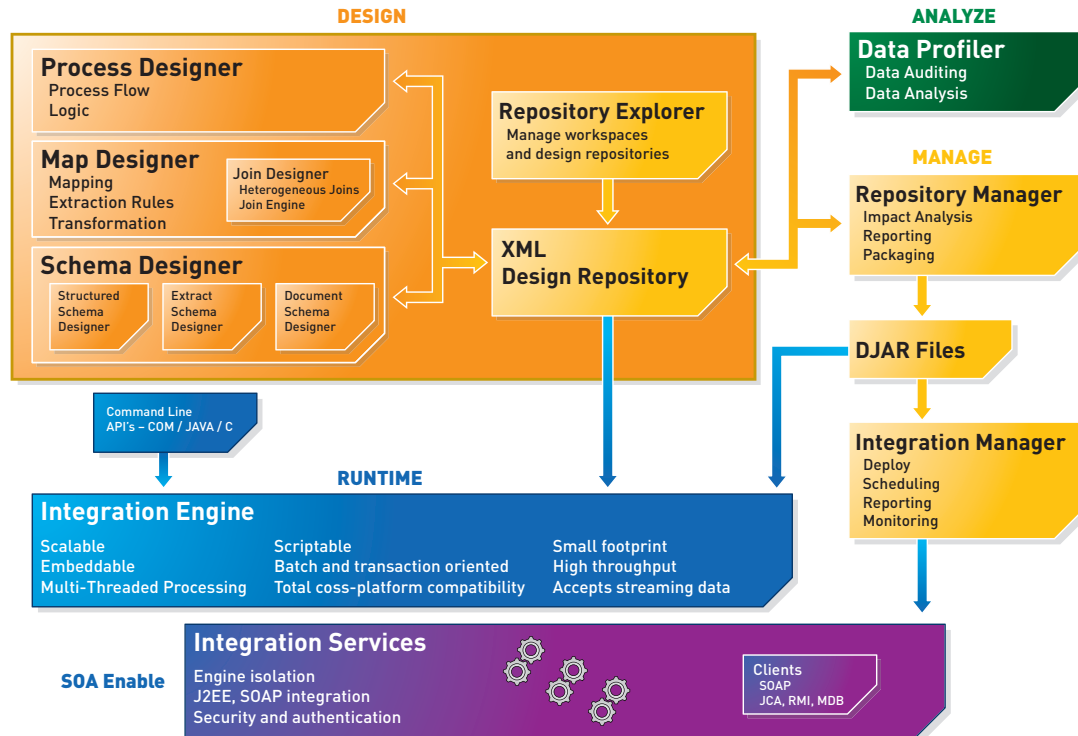
Versatile and easy to use, Pervasive Data Profiler enables you to proactively audit all types of data and automate testing against ever-changing business needs and compliance regulations. It eliminates the complexity, risk, and expense associated with traditional, and usually manual, means of assessing and validating data.

- Assess data across multiple data platforms (150+ adapters)
- Quarantine questionable data until it can be cleansed, reducing rework later on.
- Audit data formats and application sources in place without the need for intermediate data storage.
- High-performance parallel processing engine allows full audits of large transactional datasets

Pervasive Data Profiler enables organizations to improve internal controls, increase IT productivity, avoid costly rework, and increase ROI around applications and business processes that are only as good as the data upon which they are based.

PERVASIVE DATA INTEGRATION PLATFORM

The architecture behind the Pervasive data integration platform consists of a unified set of developer-focused tools for promoting authoring efficiency and maximizing code reuse across projects. The data integration platform may be separated into five distinct parts:



Pervasive Data Integration Platform Architecture

Comprehensive Design Tools – The Pervasive Integrated Development Environment (IDE) supplies developers with the design tools they need to build effective multi-step integration processes and data transformations accessing hundreds of data sources and targets.

Design Repository for Management and Deployment – The repository is an open, XML-based file system that a developer uses to track and store work across multiple projects. A variety of user interfaces assist developers with access to the design repository.

Data Analysis – Pervasive Data Profiler is essential for auditing all data sources to identify “dirty data” in order to effect recommendations for remediation and risk management before those data sources enter production systems in the enterprise.

Runtime Engines for Production and Testing – Runtime engines provide the processing power to execute maps and processes created by devRuntime engines provide the processing power to execute maps and processes created by developers, independent of the design environment for automated production purposes. Engines may be run locally for quick access to view data and test designs. In production, engines may be deployed to support configurations for scaling, distributed architectures and embedding.

Integration Services – for Service-Oriented Architectures and Web services

Ultimately, the framework simplifies the job of the component writer by eliminating some of the component and message object management issues. Components are invaluable to developers, systems integrators and solution providers as a quick method to create reusable services for data integration projects.

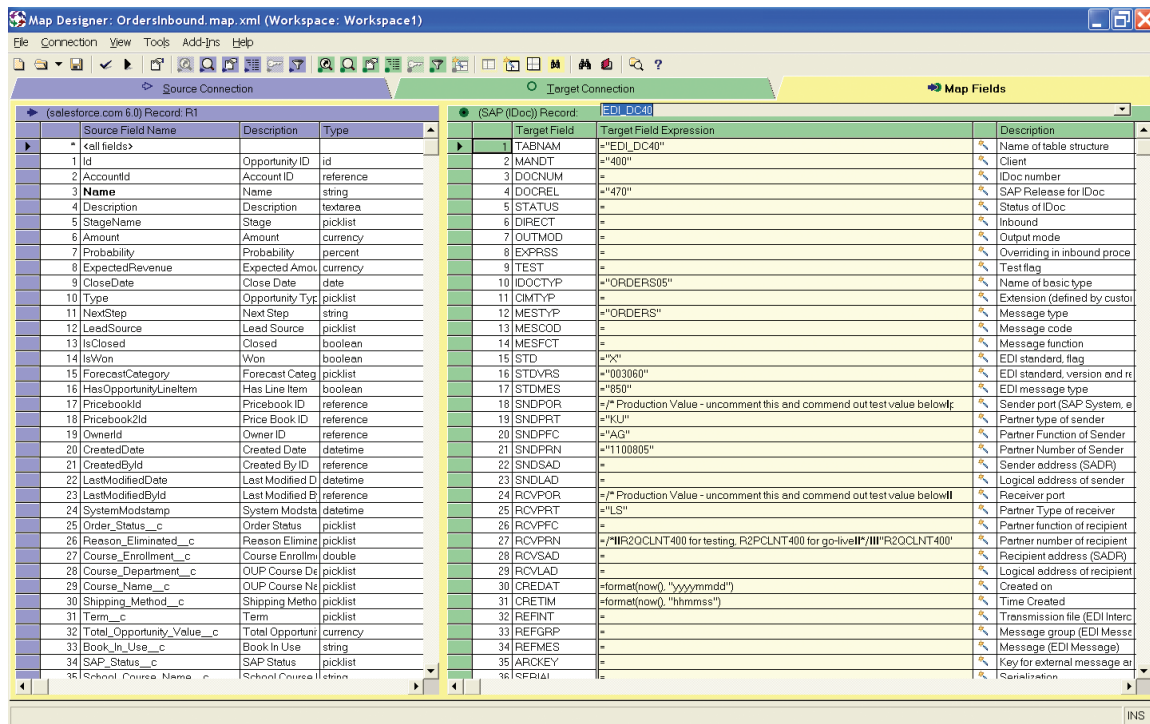
Component Types:

COMPONENT	DESCRIPTION
Aggregator	Builds a complex message object from a collection of simpler message objects.
Invoker	Provides an adaptor for external application interfaces.
Iterator	Iterate over a logical collection of messages.
Queue	Provides connectivity to a message channel.
Transformer	Transform a message object.
Validator	Validate a message object.

Pervasive Map Designer

Pervasive Map Designer is a powerful data transformation designer, providing a visually appealing user interface and Wizards for increased simplicity. The XML-based underpinnings that define an integration process allow substantially more re-use by separating Map objects, such as sources and targets, into discrete objects promoting greatly enhanced reusability in medium to large-scale production environments.

- Visually control data flow within any transformation regardless of complexity
- Define rules for mapping complex hierarchical structures such as EDI and XML data
- Debug transformations on the fly
- Utilize popular transport protocols such as HTTP, FTP/SFTP and TCP
- Integrate with message queues (IBM WebSphere, MSMQ and any JMS compliant message queue)



Pervasive Map Designer's tools put the power of transformation at a developer's fingertips.

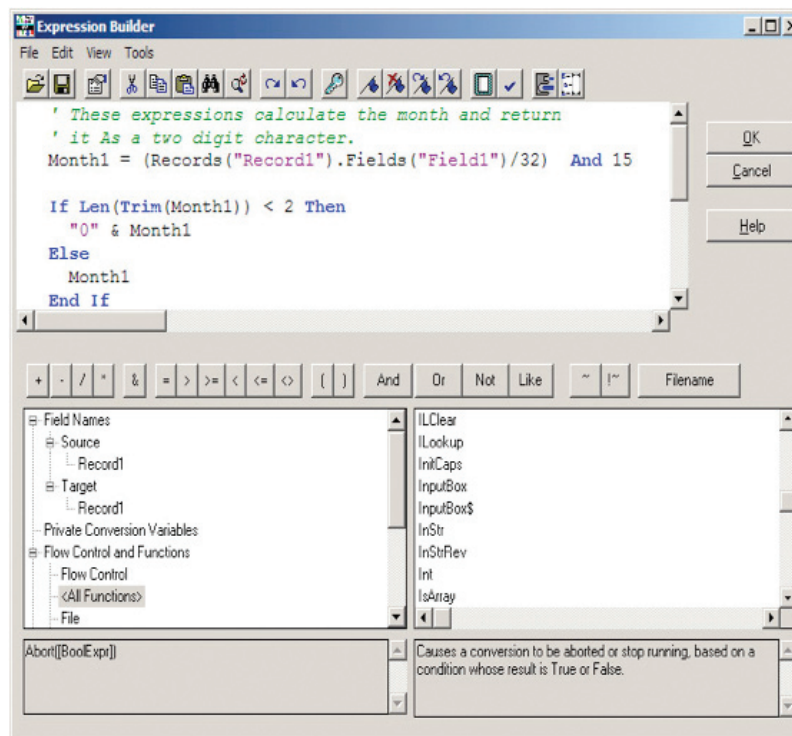
OTHER PERVASIVE DESIGN TOOLS

Expression Builders

Expression Builders are available in the design environment tools to enable the use of the Pervasive data integration scripting language called RiFL (Realtime Integration Flow Language). RiFL has been designed to promote developer efficiency on many common tasks encountered during integration projects. The RiFL language comes with numerous pre-built functions to automate developer tasks such as automatic conversion of different date formats, Boolean logic for creating smart decision points in a transformation or integration process, and math functions that provide useful information about an integration processes' execution statistics.

The RiFL language has similar structure to Visual Basic, making it easy to learn and a quick path to productivity. Many non-programmers have been able to rapidly learn how to create expressions for simple integration tasks. This modular coding environment does not require customer "exits" from the development environment to reach external custom code, supporting better code reusability, project management and debugging.

The Expression Builder loads preconfigured function syntax into to the main editing window including expected parameters. Access to data elements including source and target fields and global variables is available through this interface. Events/Actions such as "AfterRecord" reads, "BeforeTransformation" and "OnError" provide critical processing flow control points where additional logic can be inserted for performance optimization, error trapping, user-defined routines, and more.



The GUI-based Expression Builder is used to quickly build Real-Time Integration Flow Language (RiFL)

Metadata Designers: Pervasive's Structured Schema Designer, Document Schema Designer, and Extract Schema Designer

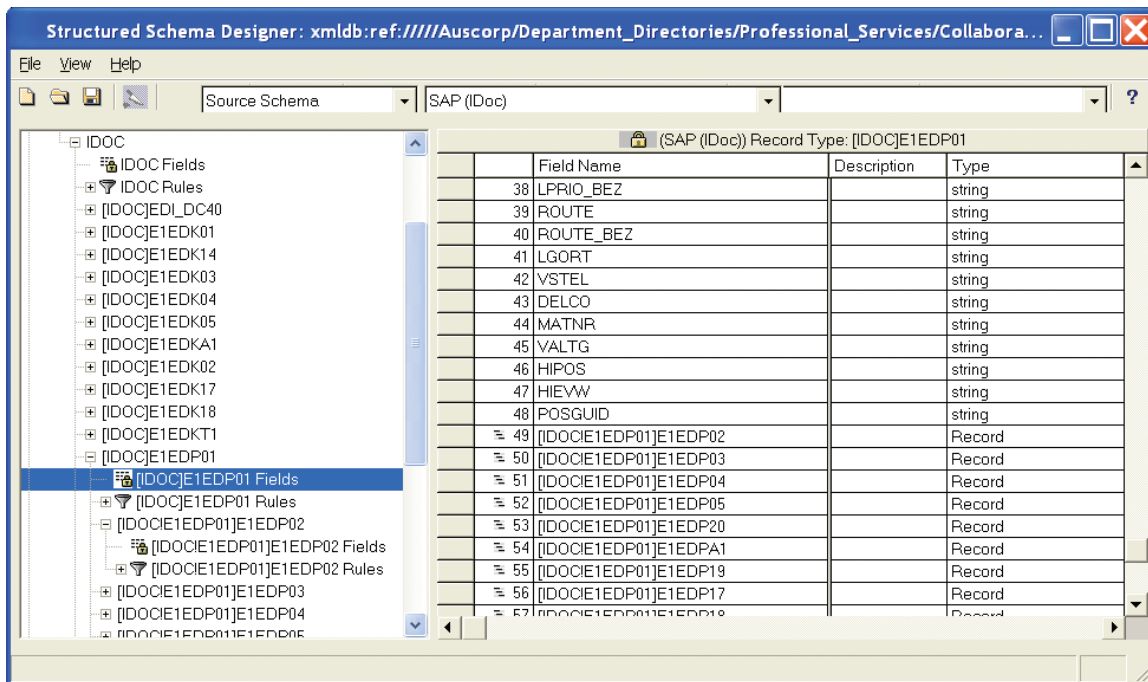
Metadata plays a key role in data integration projects. Applying the correct metadata is every bit as important as the connecting to the data itself. How well a data integration platform handles metadata challenges should be given strong consideration when selecting a solution.

Multiple metadata designers are provided with the Pervasive Data Integration design environment, including the Pervasive Structured Schema Designer for parsing legacy data and flat files, the Pervasive Document Schema Designer for standardized business-to-business data message formats such as EDI, and the Pervasive Extract Schema Designer for accessing data in unstructured content. All metadata designs may be saved and reused.

Pervasive Structured Schema Designer

The Structured Schema Designer provides a visual interface for creating, saving and manipulating metadata schema definitions for structured data sources, such as legacy data and flat files. The resulting metadata schemas are stored as XML-based structured schema documents that include schema, record recognition rules and record validation rule information. With the Structured Schema Designer you can arrange field order, assign field names and type, and specify data size.

- Visually define and adjust all record and field properties
- Parse binary data record structures and define field length, data type, offsets, and more
- Create an external metadata definition from any data format

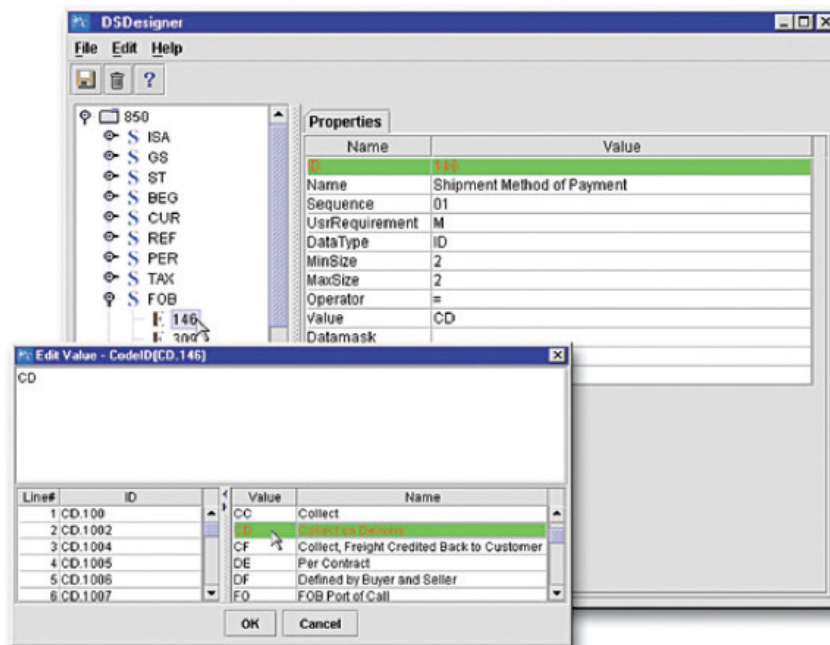


Pervasive Structured Schema Designer provides the flexible structure to visually interpret and manipulate standard and proprietary message formats.

Pervasive Document Schema Designer

The Document Schema Designer gives you a graphical interface for the definition of metadata for data exchange formats, in support of trading partner agreements and industry standards. Standard data exchange formats involve information traded between two or more enterprises (B2B) for purposes such as Supply Chain transactions or insurance claims. Industry standards include commerce-based EDI, industry-specific XML formats, HIPAA EDI, HL7, and ACORD XML. The modification and creation of metadata schemas in the Document Schema Designer gives tight control over data transformations involving B2B data exchanges.

- Significantly reduces time and effort to define and modify complex hierarchical document structures
- Allows the creation of document structures for many standards, including EDI, EDIFACT, SWIFT, FIXML, TRADACOMS, HIPAA, HCFA 1500, UB92, HL7
- Enables selection of specific segments and elements to adjust all properties, references and code tables to define the precise document structure needed for a trading partner
- Generates a validation rule set for ensuring that messages received in the format are structurally correct to prevent data quality and non-compliance problems between B2B trading partners



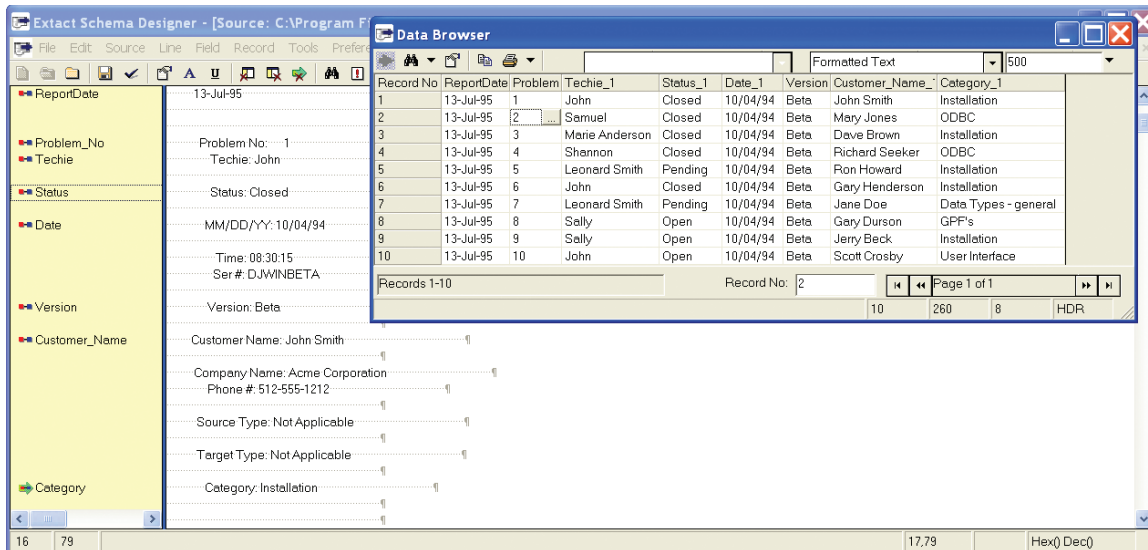
Pervasive Document Schema Designer provides the flexible structure to visually interpret and manipulate standard and proprietary message formats.

Pervasive Extract Schema Designer

Content management has become an important initiative in many enterprises, with the explosion of data and information across the enterprise on a daily basis. It is critical that enterprises are enabled to access, manage, and control all data, whether in structured or unstructured sources.

The Extract Schema Designer is a unique tool exclusive to the Pervasive Data Integration Platform for gaining access to unstructured content as part of data integration and content management solutions. The Extract Schema Designer works with content-oriented sources such as email, report data, HTML, print data or any other raw text.

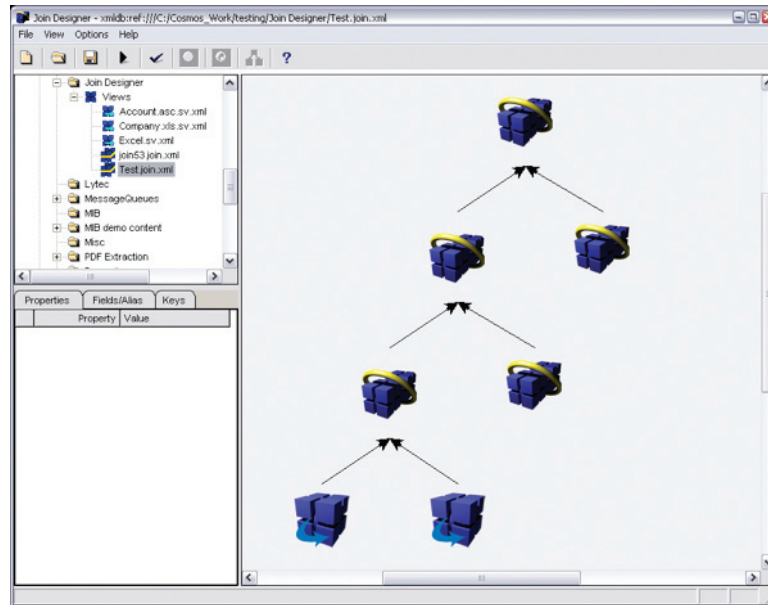
- Visual interface for rapid creation of extraction routines that are reusable
- Integrates with Pervasive Map Designer for inclusion in more complex data integration projects
- Gateway to incorporation of valuable data such as email and Internet content into the data integration projects to include all relevant data sources
- Accessible to business users to create extraction routines, eliminating expense and reliance on skilled IT staff and outside consultants to manually write coded routines
- Self-documenting visual designer ensures that extraction routines are maintainable and adjustable through future maintenance cycles



JOINING MULTIPLE FILES AS A SINGLE SOURCE

Pervasive Join Designer

Pervasive Join Designer is a tool that allows you to join two or more single-record data sources prior to running a Map Designer Transformation. These sources do not have to be of the same type. For example, you could join an SQL database table with a simple ASCII text file. The files are not physically joined. The Source View Designer is used to create Source View Files that hold metadata about each Source. From these a Join View File is created, which contains the metadata needed by Map Designer to treat the Source files as if they were a single Source. In Map Designer select “Join Engine” as the source connection to use the Join View File. The Join View File is dependent on the original Source files remaining in the same location as specified in design.



Pervasive Join Designer allows users to join two or more single-record data sources prior to running a Map Designer transformation on them.

MANAGEMENT OF DESIGN OBJECTS

Open Metadata Repository

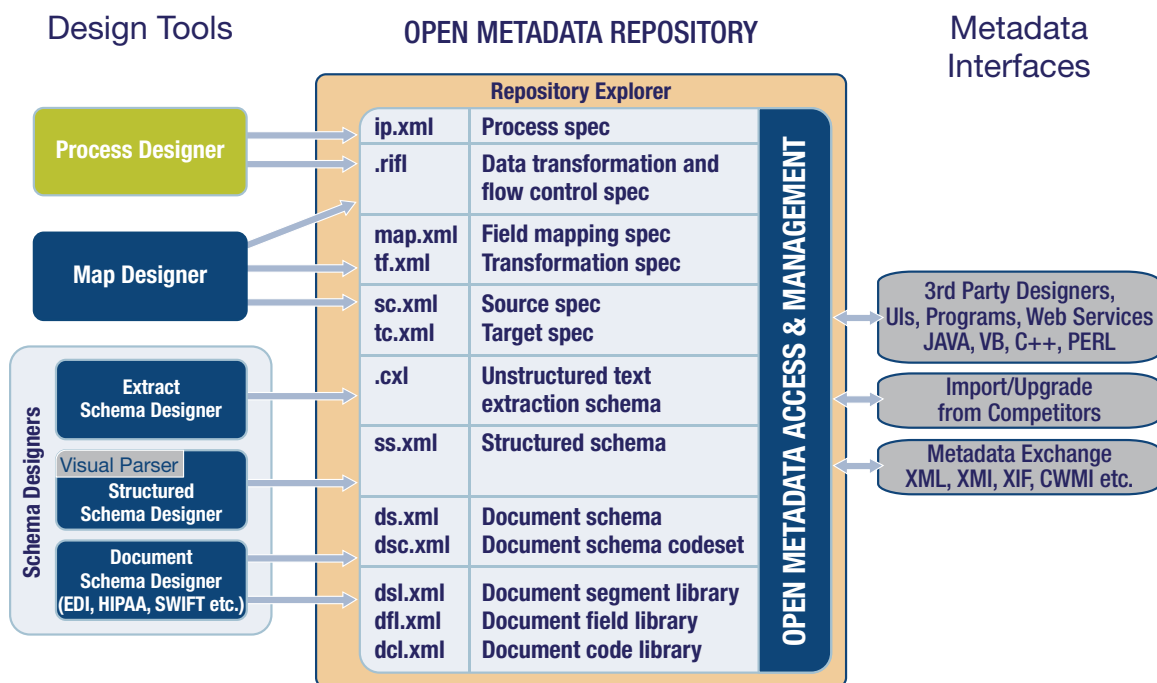
The Pervasive Data Integration Platform provides an open XML repository for housing all specifications and rules that define an integration deployment's execution and flow. Storing integration rules as non-proprietary XML provides enhanced flexibility and allows integration project designs to be easily manipulated as an organization's integration needs change and develop.

The repository itself is an open file system for storing the various components that comprise an integration design. For easy housekeeping of large or numerous projects, designs can be arranged into workspaces that can be further grouped by user or by project names.

Designs are divided into distinct, reusable components that exist independent of one another and are saved as individual XML files. By increasing the availability of reusable integration rules, costs associated with development time are often greatly reduced since individual components are sharable between users and integration tasks. This reuse theme greatly increases the efficiency with which new projects are implemented and lowers development costs associated with a project as a result.

The Repository and the XML-based specifications it holds offer:

- Easy administration of project designs and workspaces for a single developer or across multiple project groups
- Improved code “reuse” features enhance developer efficiency and project scalability
- All designs may be additionally altered or even generated through any XML-compliant development environment
- Designs are portable to be run on six different Integration Engine platforms
- XML-based specifications are both human and machine-readable, and compatible with source code control applications
- Allow ISVs to create, manipulate and even execute data integration designs from within their applications



USER INTERFACES – ACCESS TO THE DESIGN REPOSITORY

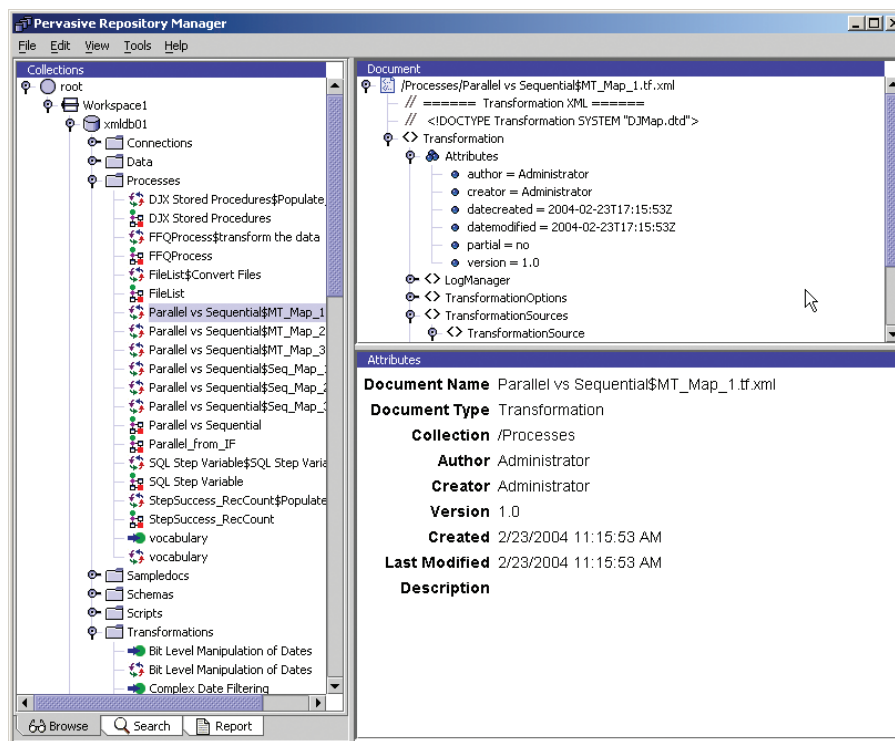
Repository Explorer

The Repository Explorer is usually the starting point for data integration design projects. It provides a consolidated view of design processes and manages the repository contents created by the various design tools. The exploration and control capabilities can be executed across multiple repositories and a simple double click on any design component opens the appropriate design tool.

Repository Manager

The Repository Manager is a toolset that helps the developer and project manager get more out of the Pervasive Data Integration Platform development experience and to coordinate work across multi-developer integration projects.

- Dependency impact analysis to track dependencies between design components and offer insight into the impact of proposed changes within a project's work plan
 - o Avoid creating problems in one design component while working on another
 - o Obtain vital information to estimate impact of project tasks
- Search and replace any RiFL code or XML element across designs and projects
 - o For easier deployments where known parameters change between development, test and production environments
- Deployment packaging eases the process of collecting related designs into a secure package that is a single deployment component for use with the appropriate production or test engines
- Repository Manager offers reports on key attributes of designs: creation date, last edited date, last executed date, authoring, and more



Pervasive Repository Manager

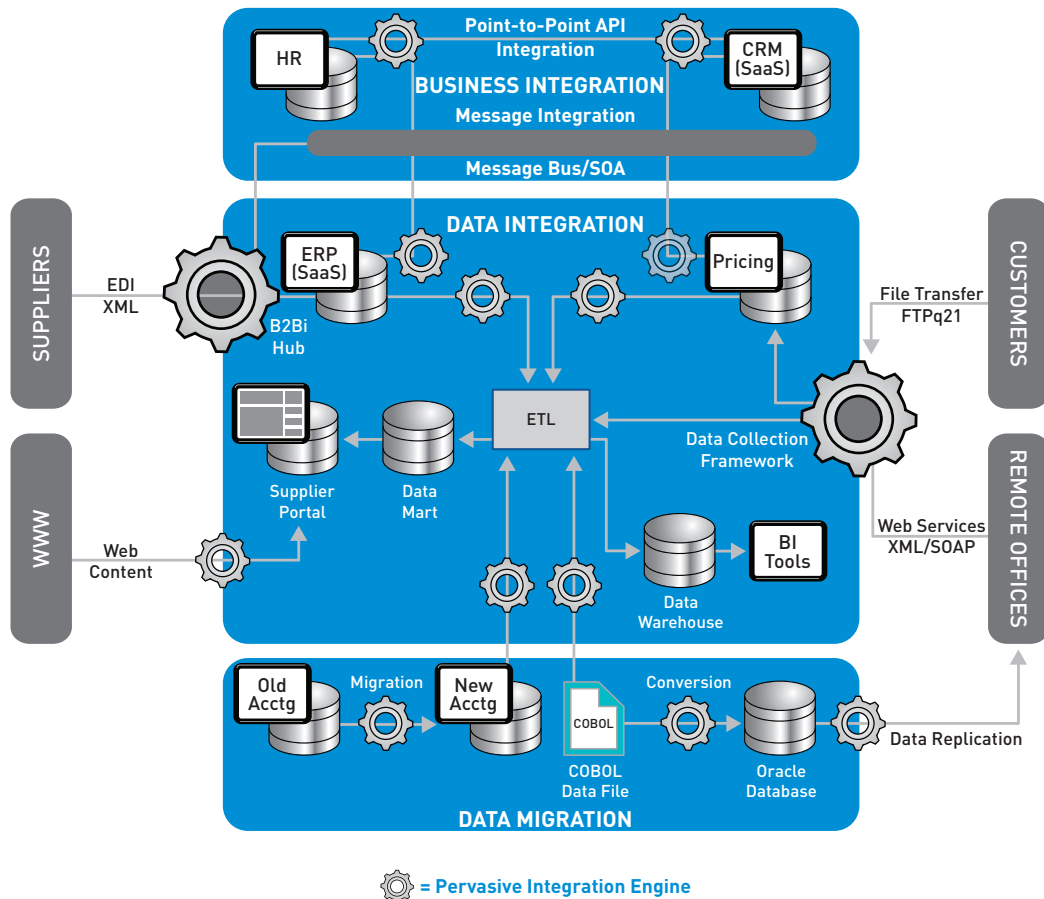
PERVASIVE INTEGRATION ENGINES – PRODUCTION AND TEST ENVIRONMENTS

Pervasive Data Integration Engines are uniquely architected to provide multi-dimensional scalability for complex integration challenges. Integration engines work for many solution delivery modes: basic extract-transform-load (ETL) projects; large-scale B2Bi processes; traditional data integration brokering needs; large-scale multi-terabyte, parallel-processing transformations; embedded application solutions. Engines are available for design/testing and production deployments. They are configurable to meet the requirements of any integration project.

Integration Engines are also highly embeddable through rich interfaces that are supported by SDKs and command line functionality for pinpoint control by external applications.

Pervasive Integration Engines are currently available for the following OS platforms:

- Windows
- Linux
- HP-UX
- SUN Solaris
- AIX



Potential deployment options with Pervasive's Integration Engine – distributed or centralized, supporting incremental adoption of a complete platform

ENGINE MANAGEMENT - PERSASIVE INTEGRATION MANAGER

Pervasive Integration Manager provides the means for automating and managing distributed integration engines. With single-point administration and powerful tools, Pervasive Integration Manager provides scheduling, monitoring, and reporting on engine executions while providing a scalable architecture for future growth.

Since all management is performed from a single administration point, Integration Manager improves operational efficiency in the management of geographically distributed integration engines. With the ability to remotely administer any number of integration points throughout the organization, customers can build out their integration infrastructure as required, using a flexible and scalable architecture designed for easy manageability.

Trouble-shooting capabilities provide immediate response to potential problems during production runs. Reporting on execution during production runs enables fine-tuning of data integration processes for efficiency and optimal use of resources.

The screenshot shows the 'Integration Manager' web application interface. The top navigation bar includes 'Home', 'Upload', 'Deploy', 'Schedule', 'Monitor', 'Report', 'Manage', and 'Configure'. The 'Schedule' tab is active, and the 'Now' sub-tab is selected. On the left, a tree view shows 'Integration Servers' > 'Default Group' > 'isec:127.0.0.1:1999'. The main content area displays a 'New Scheduled Event' form with the following fields:

- Server:** isec:127.0.0.1:1999
- Start Time:** 1 :00 am
- Repeat Interval:** 0 :00
- Day of Week:** Sun, Mon, Tue, Wed, Thu, Fri, Sat (checkboxes)
- Day of Month:** 1-31 (checkboxes)
- Month:** Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Oct, Nov, Dec (checkboxes)
- Year:** All (dropdown)
- Package:** (text input)
- Description:** (text input)

Buttons for 'Save', 'Reset', and 'Cancel' are at the bottom of the form. A help text box above the form states: 'Complete fields and click the Save button. At least one Day of Week or Day of Month must be checked. If no Month is checked, the event occurs every month. If the Year is blank, the event occurs every year.'

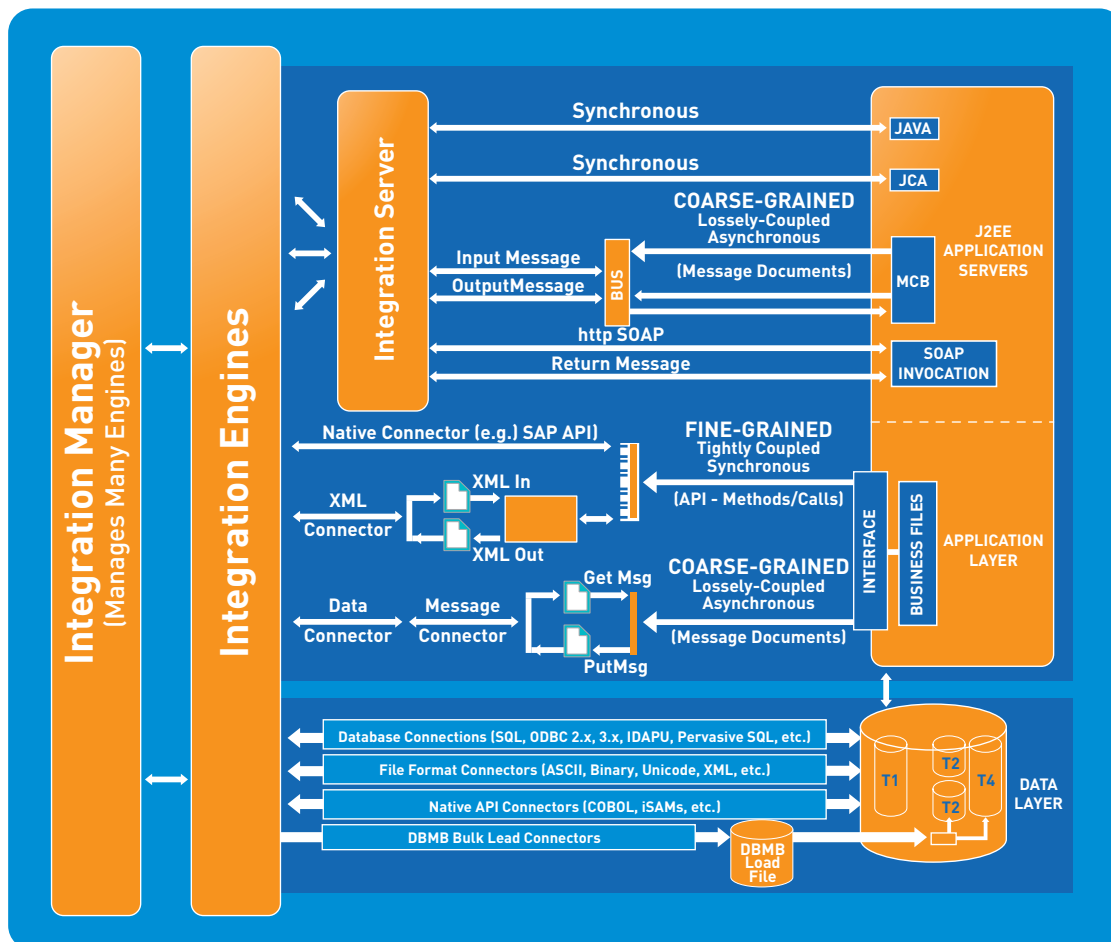
Pervasive Integration Manager – Schedule Feature

INTEGRATION SERVICES

Pervasive Data Integration solutions may be deployed via services in a variety of ways depending on customer requirements (see diagram below) – from a single, lightweight embedded engine to a distributed, fully managed set of Service Oriented Architecture (SOA) adapters.

When deploying in SOA environments there are several communication mechanisms that work in conjunction with J2EE application servers. Collectively, the capabilities below are called the Integration Services SDK:

- A purpose-built Message Driven Bean (MDB) that is configured to listen on a JMS queue for the input message, then invoke a specific integration specification via the Integration Server. The Integration Server, in turn, will find an available Integration Engine on the local server and invoke the desired integration specification and return the results
- A JCA RA for synchronous invocation of integration specs via the Integration Server (as above)
- A Java API for synchronous invocation of integration specs via the Integration Server (as above)
- An HTTP WS-I compliant services interface to the Integration Server to accept SOAP invocations from any application (not only J2EE)



Pervasive Integration Engine Deployment Options

Adapters

For runtime, the Integration Engines support more than 150 factory-supplied adapters. Most of the Pervasive data adapters have been written to take advantage of native APIs and industry standards. Many of the adapters are available for multiple platforms.

Database adapters support a range of modes from client/server access, local database access, multimode where a single data stream can be rapidly spread across multiple tables in a target database, and mass-insert for high-speed bulk loading of data.

File

Access Access 97 Access 2000 Access XP Alpha Four ASCII (Delimited) ASCII (Delimited) Join ASCII (Fixed)	Clarion Clipper CLF Webserver DataEase DataFlex DJ Document Schemas DJ Log File Data dBASE II, III III+, IV, V, (IDAPI)	Dialog DIF Enable Excel 95, 97 Excel 2000 Excel XP Folio Flat File Foxbase	FoxPro LDIF Lotus 1-2-3 Lotus Notes Lotus Notes 5 Lotus Notes Structured Text Lotus Works Mac ASCII Delimited	Magic PC MAILERS+4 (dBASE) Microsoft Word (Mail Merge) Paradox v5 (IDAPI) Quattro Pro Windows v5 Rich Text Format (RTF) Unicode (Delimited) Unicode (Fixed)	WordPerfect 6.0 (Mail Merge) Wordstar (Mail Merge) WordPerfect 4.2/5.0 Visual FoxPro Visual dBASE 5.5
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Database

Oracle 7, 8, 9i, 10g, 11g Oracle 7, 8, 9i, 10g, 11g Multimode Oracle Direct Path Oracle SQL Loader Pervasive.SQL 8, 9, 10 Pervasive.SQL 8, 9, 10 Multimode PostgreSQL PostgreSQL (ODBC 3.x) Btrieve 5, 6, 7, 8	CA dB-Fast C-ISAM Cloudscape CWM DB2 7.2, 9.5 UDB DB2 7.2, 9.5 UDB Multimode DB2 Loader DB2 UDB Mass Insert DB2 (ODBC) eXcelon, eXcelon XIS 3 Hitachi HI-RDB	IDAPI Informix DB Loader Informix (ODBC) Informix Online DS Informix/SE Ingres (ODBC 3.x) Interbase (IDAPI) JDBC MUMPS (ODBC) MySQL NonStop SQL/MX	ODBC 3.5 ODBC 3.5 Mass Insert ODBC 3.5 Multimode RBase 4.5 (ODBC) Red Brick Scalable SQL SQLBase SQL Script SQL Server 6, 7, 2000, 2005 SQL Server 6, 7, 2000, 2005 Mass Insert	SQL Server BCP SQL Server Mass Insert SQL Server (ODBC) Sybase 11, 12 Sybase 11, 12 Mass Insert Sybase 11, 12 Multimode Sybase BCP Sybase (ODBC) Sybase SQL Anywhere Sybase SQL Anywhere 6 Sybase SQL Mass Insert	Sybase SQL 11 Sybase SQL 11 Multimode Teradata (Fastload) Velocis (ODBC 3.x) Watcom SQL v5 Watcom SQL (ODBC)
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Application

AccountMate ACT! for Windows ADABAS (NatQuery) Apache CLF Champion Acct. CYMA Acct. GoldMine	Great Plains DOS Great Plains UNIX/Mac Navision Financials Macola Acct. Market Force Microsoft Dynamics CRM 4 Microsoft Dynamics GP 9, 10	Microsoft IIS ELF NetSuite Oracle Applications Oracle Siebel CRM On Demand PayChex DJF Peachtree Acct.	Personal Librarian Pivotal CRM Platinum Acct. RealWorld Acct. RightNow Sage CRM SalesLogix Sage MAS 90/200	Sales Ally Salesforce SAP BAPI, IDoc, EAA SAS SBT Acct. Solomon Acct. SPLUS	SPSS Statistica SYSTAT USMARC
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Technology

BizTalk XML DataRush Email Email Attachments	Erwin File Folder Queue (FFQ) File Transfer Builder FTP	HTTP/S HTML JMS LDAP	Microsoft MQ Websphere MQ Oracle AQ Oracle BPML	Progress Sonic ESB, MLLP, FIX SGML SOAP	TCP/IP URL/URI XML XML Schema, DTD, XDR
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Legacy

ACUCOBOL (ODBC 3.x) ACUCOBOL-GT v7 BAF Binary	Binary Line Sequential COBOL 01 COBOL Copybook COBOL Flat File	C-tree Plus C-tree 4.3 Fujitsu COBOL ISAM	Micro Focus COBOL QSAM Sequential Binary Tape Drive Sequential	VSAM Variable Sequential (MVS) Variable Sequential (Record-V UniKix)	Variable Sequential (SyncSort) Variable Sequential (User Defined)
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B2B

ACORD EDI (EDIFACT) EDI (X12)	FIX HCFA 1500-NSF HIPAA	HL7 HR-XML MIB	NCPDP NSF SWIFT	Text (Delimited – EDI) Text (Delimited – EDIFACT) Text (Delimited – HL7)	TRADACOM UB92-NSF
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GETTING STARTED TUTORIALS – PERVASIVE DATA INTEGRATION DESIGN TOOLS

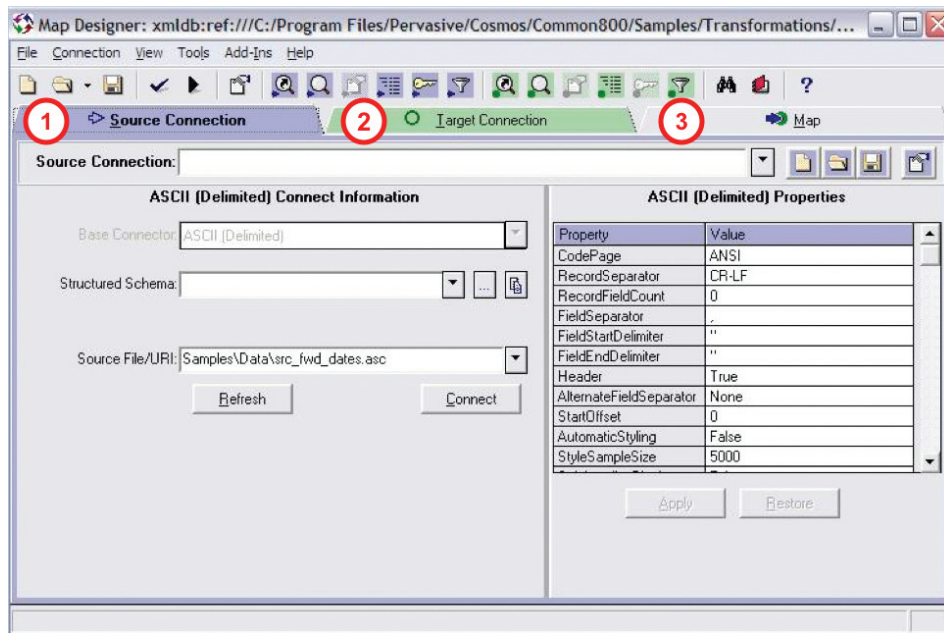
A select group of tutorials has been reprinted here to give product reviewers a quick path into an understanding of the software product that they have downloaded from Pervasive Software. The tutorials illustrate product capabilities and what benefit they provide for data integration projects.

BASIC PERVASIVE MAP DESIGNER TUTORIAL

Overview of Map Designer User Interface

The purpose of this tutorial is to guide the new evaluator or user through the basic steps necessary to create, save, and run a basic Map in the Map Designer. It will help the user to become familiar with both the basic process of converting data from one application to another using Map Designer and the terms used throughout the documentation. The best way to use this tutorial is to print a hard copy so the sequential steps can be easily followed. The Target file created in this tutorial will be used as the Target file in the other tutorials available in the Map Designer Help File, so this tutorial must be completed before going forward with other Map Designer tutorials.

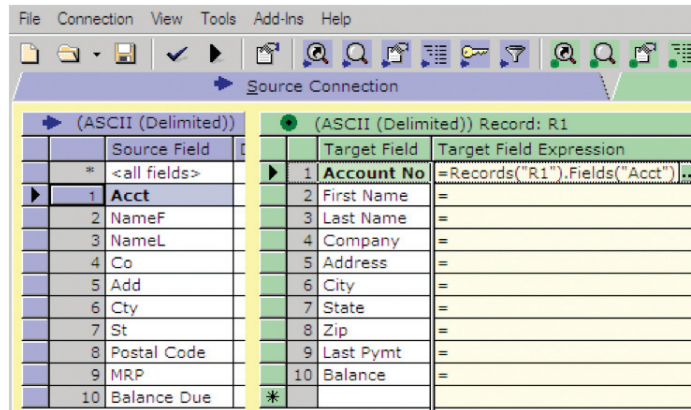
Before beginning the tutorial it is important to understand the basics of map design. Map Designer is a tool designed for the creation of data transformations. While the variety of options Map Designer offers the developer for incorporation into their designs is very wide (numerous connectors to different data sources and targets, numerous pre-built and customizable scripting functions built into a robust scripting language for use in managing transformation logic, flow control logic, string manipulation, data format manipulation, lookup tables, filtering, and so on), the basics for map design are simple: **Connect to a source, Connect to a target and Map the data** as seen in the three tabs from the Map Designer screen shot below:



- (1) Connect to a Source** – Pervasive Map Designer comes with three main tabs, the first of which is used to handle all connectivity options to the data source for the transformation design. Depending on the Integration product you are evaluating, you have a choice between numerous native connectors to legacy and modern databases, flat files, and directly to many applications. Once connected, you can freely browse the source data at any time to assist with the transformation process.
- (2) Connect to a Target** – The second tab is used to handle all connectivity to the target destination. Again, numerous connectors are available for writing the transformed data to your target database, file, message format, etc. Depending on the options selected in this tab, the transformation can replace data in a target, append data, delete all data and reload. Also, for

database targets, parent-child relationships can be maintained by using Pervasive multi-mode connectors that load data in more than one table in a database.

- (3) Create the Map** – Once the Source and Target are defined and connected, the “Map” tab is where the data transformation is designed. Field structures are displayed for source and target data and a simple drag and drop of source fields to the target is all that is needed for a simple pass through transformation. From there, the Map tab includes a rich set of event actions and transformation scripting options to handle everything from error trapping to validation to complex transformation and flow logic using the Real-Time Integration Flow Language (RiFL) built into the product for scripting. The screen image below shows the map tab with the source data fields at the top and the target fields at the bottom



MAP DESIGNER TUTORIAL — CREATION OF A BASIC TRANSFORMATION MAP

After reviewing the overall Map Designer GUI layout and the basics of map design, it is time to work through the creation of a simple map using Map Designer.

Open the Repository Explorer to Get Started

Open Repository Explorer (Start > Programs > Pervasive > Repository Explorer).

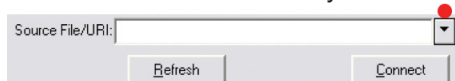
Click on the down arrow beside the New icon in the toolbar and select **Map** to open the Map Designer window. Once Map Designer opens, the **Source Tab** will be displayed:



1. Click on the **down arrow** beside the **Source Connection box** to open the Select Connection Window.



2. You will have a choice of three tabs in the Select Connection window: “Most Recently Used,” “Factory Connections” and “User Defined Connections”. Click on the **Factory Connections tab** and click on **ASCII (Delimited) connector** from the list. Click **OK** to return to the Map Designer window.
3. Click the **down arrow** next to the Source File/URI box. This will open the standard Windows navigation dialog box. **Tutor1.asc** is the source file that you will be using – it is located in the default installation directory **\Common800**.



NOTE: The usual default file extensions for ASCII delimited are “.asc”, “.csv” and “.txt”.

4. Click on **Tutor1.asc** and then click the **Open button**. You will be taken back to the **Source Connection tab** and the drive, directory and filename will be visible in the **Source File box**. If a dialog box displays with a File Sample Size message, click “**OK**” to close it.
5. Click on the **Source Data Browser icon** to display the source file. You will see that it contains field names in the first row of data. This is the file header. Close the Source Data Browser by clicking on the **X button** in the top right.

- The Source Properties options box is on the right side of the Source tab. This is where specific properties of the Source file can be set. Click on the word “**False**” next to the word “**Header**” in the **Source Property** options box, and then **double-click** to change it to **True**.

Property	Value
CodePage	ANSI
RecordSeparator	CR-LF
RecordFieldCount	0
FieldSeparator	,
FieldStartDelimiter	"
FieldEndDelimiter	"
Header	True
AlternateFieldSeparator	None
StartOffset	0
AutomaticStyling	False
StyleSampleSize	5000

- Click the **Apply** button below the list of **Property Options**.
- Click on the **Target Connection** tab.



- Click the down arrow next to the Target Connection box to open the “Select Connection” window.
- You will have a choice of three tabs in the Select Connection window: “Most Recently Used”, “Factory Connections” and “User Defined Connections”. **Select the “Factory Connections” tab**.
- Select **dBASE IV** from the list. Click the **OK** button to return to the *Map Designer* window.
- Click the **down arrow** to the right of the **Target File/URI box**. This opens the standard Windows navigation dialog box. The default file extension will appear in the File Name box (in this case, “.dbf”). Replace the asterisk (*) with “**Tutor1**” and click **Open**.
- The **Connect** button should be **grayed out** at this point indicating a connection to the target has been made. If the **Connect** button is **not grayed out**, then click on the **Connect** button to connect to the target. The Output Mode will default to Replace File/Table when you are creating a new Target file. This output mode will create a new file or replace any existing file of this name in this directory.
- Click the “**Map**” tab.



- The **Map tab** displays three main panes on the upper half of the window. The upper left pane shows the fields associated with each Source Record type. The tree opens already expanded and the fields for record type R1 are highlighted.

The upper middle pane contains a grid showing the fields associated with each Target Record type.




And the upper right pane shows the Events / Actions for mapping from Source to Target

Drag-and-Drop functionality:

- In the upper left grid, locate the box that contains an **asterisk (*)** next to the cell that says <all fields>. This asterisk represents the layout of all fields in the Source File and acts as a shortcut to duplicate the entire Source Schema in the Target file. **Click** on this **cell** and hold down on the mouse button.
- Drag the cursor** to the middle grid for the Target. The cursor will change to a black rectangle when it is over a cell in which the selected file information can be inserted. Release the mouse button when the cursor is in the first cell of the middle grid.
- Since dBASE does not allow lowercase letters or spaces in field names, an Invalid Field Name dialog box will appear. Map Designer will offer to fix the problem in various ways. The default is to automatically create valid field names based on the Source field name for all invalid fields.
- Click the OK button on the Invalid **Field Names dialog box**.

20. After you click the OK button, all the lowercase letters will change to uppercase and spaces will change to underscores for the Target field names. The **Target Field Expression column** will be filled with the Source field names in appropriate notation for mapping expressions to a dBase file.
21. For transformations that have only one record type, after you map your fields, a ClearMapPut Record action is automatically added to the AfterEveryRecord event in the Source Events / Actions grid, so your transformation is ready to run. For most other transformations, you will set up the necessary event actions as appropriate for each transformation definition.
22. **ClearMapPut Record** is the most commonly used action in a transformation. The ClearMapPut Record combines the actions of: 1–clearing the memory buffer of previous contents (usually previously read record), 2–mapping the Source data to the Target data structure, and 3–writing the record to the Target file or table specified.

You have now completed the three basic transformation steps.

23. Click the “**Save Map**” icon in the toolbar.
24. This will open the **Save As** dialog box in which you are prompted for a Save Location. This will default to your Workspace, but you should verify the location prior to saving the map and change it if needed. Maps default to the document type “.map.xml”.
25. Type a **document name** to replace “map1” in the text box and click **Save**. Your transformation is saved.
26. Click on the **Validate Map**  icon in the toolbar. The Map should validate correctly.
27. Click the **Run Map** icon in the toolbar. 
28. Map Designer will load all the information it needs to run this transformation and then execute it. You will see a gauge quickly flash on the screen as the transformation progresses. A counter will estimate the number of records converted. When the transformation is finished, the total number of records read and the number converted will be displayed in the status bar at the lower left of screen display.
29. Click the **Target Data Browser** icon  in the tool bar to view the new dBASE IV file. This will open a new window in which you can view and browse the dBASE IV file just created.
30. After viewing the dBASE file, close the browser by clicking the **X button** in the upper right corner.
31. Close *Map Designer* by clicking the **X button** in the upper right corner.

You will be back in the Repository Explorer, where you will see the Map you just created in the Repository Documents list in the right panel. If you do not see the new map, click on your workspace repository in the left panel tree structure.

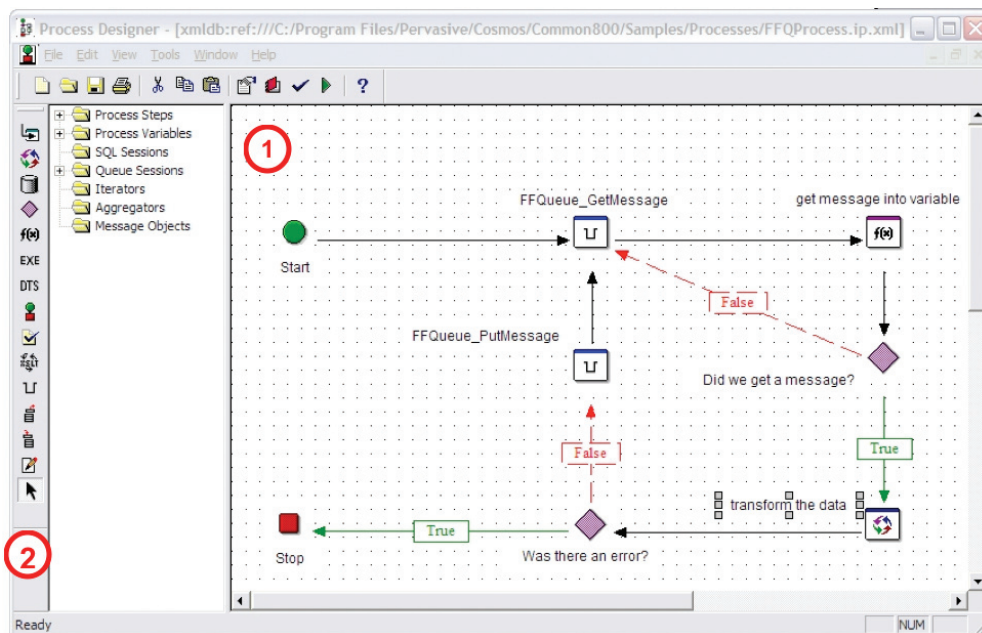
Congratulations, you have just created, validated, saved and run your first Map using Pervasive Map Designer!

BASIC PERVASIVE PROCESS DESIGNER TUTORIAL

Overview of Process Designer User Interface

The purpose of this tutorial is to instruct the evaluator or new user on the basics of building integration process designs using the Process Designer. Process designs represent the higher level workflow of the various steps in a simple or complex integration task. The best way to use this tutorial is to print a hard copy to easily follow the sequential steps.

Process designs, like any workflow tools, have a starting point and an end point for a given process. Within each process, any number of steps can be dragged onto the Process Designer canvas from the pre-built list of process flow icons on the left hand side of the display. These are used to build process steps that can call transformations (maps created in Map Designer), decision steps where logic can be recorded to push a flow down one or more paths depending on the situation, looping logic, parallel processing logic, embedded sub-processes, and so on.



(1) Process Design Canvas – This area is blank (except for Start and Stop steps) when designing a new process, but later contains all the process elements in a saved process design. The above example shows a completed process design that includes queues set up to collect data exchange messages (EDI or HIPAA, for example), a looping structure to continue monitoring the queue and a transformation set up to utilize newly received messages. It also contains branching logic nodes that can route a process down one or more paths depending on logic parameters.

(2) Process Design Icon Palette – All the items on this palette may be dropped onto the canvas and then built out to create a simple or complex integration process or workflow. Once on the canvas, the process design icons will be customized by adjusting their properties to enact the specifics needed for each step in the process flow.

Process Designer Tutorial – Creation of a Basic Process

This step-by-step tutorial is available to assist learning how to use the Process Designer and will introduce the graphical interface and the drag-and-drop method of creating processes. The best way to use this tutorial is to print a hard copy so the sequential steps can be easily followed. It is assumed that the evaluator or user has familiarity with the Map Designer and has worked through the basic Map Designer Tutorial in this document before taking on Process Designer, and that the introduction to the Process Designer has been reviewed.


Task

Create a process that will run once a day, including a transformation, but if it is a Sunday additional routines will also be run. For this tutorial, the transformation and the Sunday routines are not actually included. Instead, comment boxes are used to enable the running of the process as part of this tutorial. As an additional exercise, a transformation may be created using the sample data in the Map Designer Tutorial and added to the process for this tutorial.

Procedure

1. From the Repository Explorer, click on the down arrow beside the **New** icon in the toolbar and select **Process** to open the Process Designer window.

A Process Canvas is displayed showing Start and Stop steps. Every process must have one start and one stop step.

2.  Per previous presentations, move after “Scripting step icon.” Click once on the **Scripting step icon** on the Process Step Bar and move the cursor over the canvas. **Position the cursor below the Start step and click the left mouse button.** A Script step will be displayed in this position.

You can drag a step around the canvas by left-clicking the cursor on it, holding the button down and moving the step around.

3. Double-click on this step on the canvas to open the **Scripting step Properties window.**

4. Rename the step “**Run Daily Transformation**” in the **Name property.**

5. **Click on the Expression field and type:**

```
MsgBox("Run Daily Transformation")
```

Note: See the help topics for the MsgBox() function if you are not familiar with its use.

6. Click on the **OK** button to close the Scripting Properties window.

7.  Click on the **Decision step icon** on the **Process Step Bar**, position the cursor beneath the **Script step and click** the left mouse button again. A **Conditional Decision step** will be displayed.

8. Double-click on the icon on the canvas to open the **Decision step Properties window.**

9. Rename the step “**Is it Sunday?**” in the **Name property.**


You now need to create a condition that will be TRUE if this procedure is run on a Sunday and FALSE on any other day. The condition will be built in the Expression property box using a VB-like scripting language called RiFL (Realtime Integration Flow Language) implemented by Pervasive for data integration tasks.

10. Click on the Expression property and type:

```
DatePart("w", Now())=1
```

Note: See the help topics for the DatePart() and Now() functions if you are not familiar with these.

11. Click **OK** button to close the Decision step Properties Window.

12.  Create another **Scripting step**, this time to the right of the Decision step.

13. Double-click on this step to open the **Scripting step Properties window.**

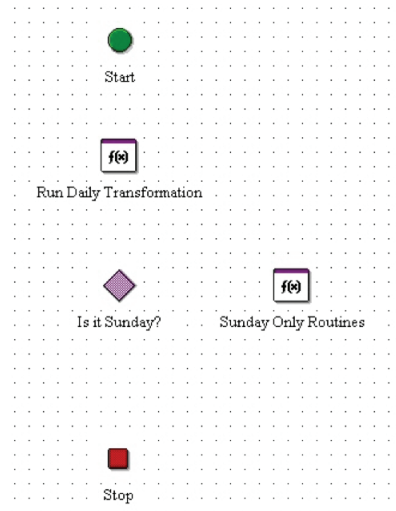
14. Rename the step “**Sunday Only Routines**” in the **Name property.**

15. **Click on the Expression property and type:**







```
MsgBox("Sunday Only Routines")
```

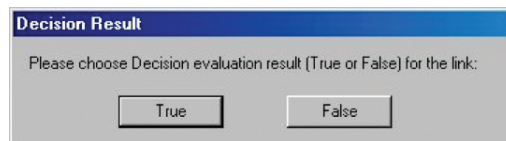
Note: See the help topics for the MsgBox() function if you are not familiar with its use.

16. You should now see the following diagram:



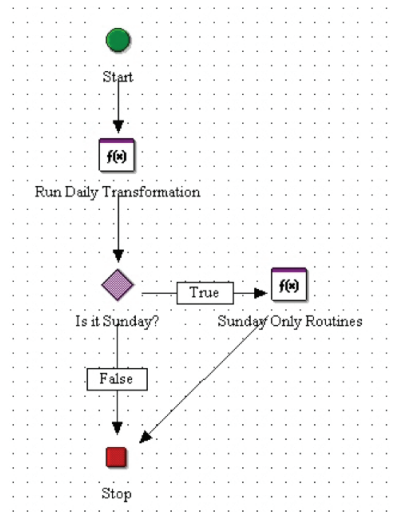
Now link the steps to show the sequence in which they must be run.


17. Click on the Link icon  and move the cursor over the Start step. The cursor will appear as  when it is over the canvas and  when it is over a step.
18. Click on the **Start step**. Now move the cursor to the **“Run Daily Transformation” function step**. Again the cursor will appear as  until it is over a step, when it will appear as .
19. Click on the **“Run Daily Transformation” step**. An arrow will now appear linking these steps in the order they are to be performed. Note that the cursor is still showing as . This is so that you can link all your steps without having to repeatedly return to the Process icon bar.
20. Create a link from “Run Daily Transformation” to “Is it Sunday?” in the same way.
21. Create a link from “Is it Sunday?” to the “Sunday Only Routines” function step. In this case the following dialog box will be displayed:

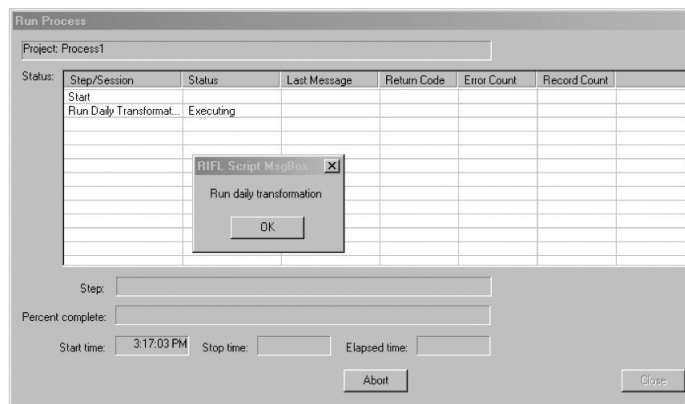


22. Select True. This shows that this is the path to follow if the condition specified in the “Is it Sunday?” evaluates as TRUE.
23. Create a link from “Is it Sunday?” to the “Sunday Only Routines” function step to the “Stop” step. Again the Decision dialog box is displayed. Select False.

24. Finally create a link from “Sunday Only Routines” to “Stop”.
Your diagram should now look something like this:



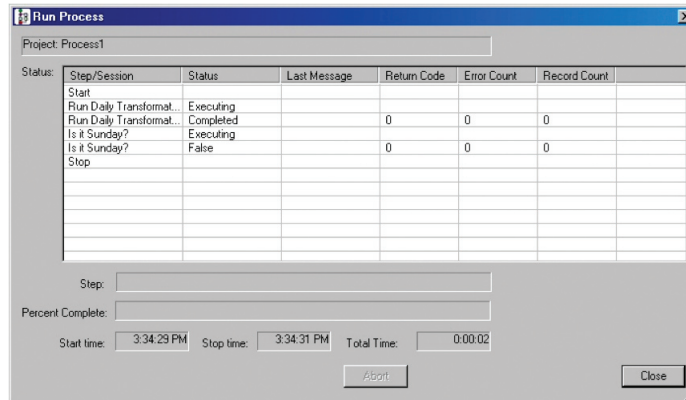
25. **Validate** the process – **click on** in the tool bar. The process should validate correctly.
26. To run the process, **click on** the  button. If everything has been set up correctly the following will appear:



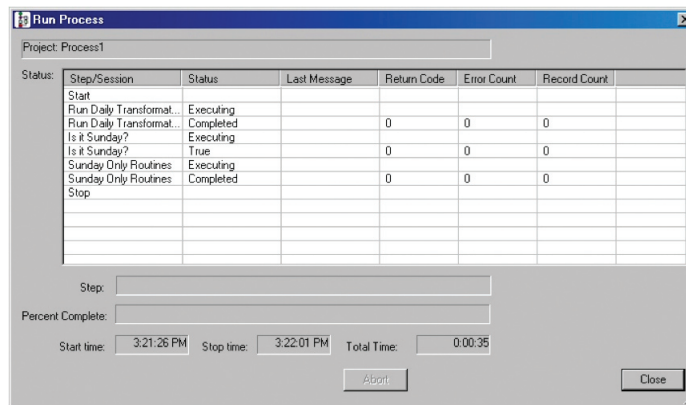
27. This shows the Run Process dialog that displays details of the Process as it goes through each step. In this case the RiFL Script MsgBox shows that it has reached the “Run Daily Transformation” step.
(In a real-world example a transformation would be carried out at this point and the process would not be stopped.)

28. Click **OK** button to continue.

The following shows the completed process if run during the week:



The following shows the completed process when run on a Sunday:



Congratulations, you now have mastered the fundamental process and map design skills needed to evaluate the product.

BASICS: MAP DESIGNER, PROCESS DESIGNER AND EXTRACT SCHEMA DESIGNER

To find the Getting Started Guide:

Windows Desktop, Start, All programs, Pervasive, Documentation, Getting Started Guide

To open a particular designer:

Windows Desktop, Start, All Programs, Pervasive, Integration Architect, Designers – then select one of the designers. The majority of the tutorials and samples involve either Map Designer. There are also tutorials for Process Designer and Extract Schema Designer.

Map Designer

To find additional information, tutorials and samples, go to the in-product Help Menu. Then select one of the following: Contents, Tutorials, Samples.

Map Designer Tutorials List

- Tutorial 1 shows you the basics of how to transform predefined source data to a new target file
- Tutorial 2 shows you how to define fields in a fixed ASCII source file and transform the data to a new target file
- Tutorial 3 shows you how to append source data to an existing target file
- Tutorial 5 shows you how to transform data where the source is a single-record type and the target is a multi-record type XML file. This tutorial is particularly useful for learning how to use the event handlers

Note For all of the above Map Designer tutorials, see “Transformation and Schema Tutorials” on page 1-1 in the *Tutorials Reference*.

Process Designer

To find additional information, tutorials and samples, go to the in-product Help Menu. Then select one of the following: Help Topics, Tutorials, Samples.

Process Designer Tutorials List

- Step-by-Step Tutorial for Learning Process Designer: Process Designer Tutorial - The Basics

Extract Schema Designer

When this designer is first opened, a dialog displays to invite evaluators and new users to learn more about Extract Schema Designer. Click on the button for “Learn More About Extract Schema Designer” to begin the tutorials. You may also access the tutorials through the in-product Help Menu, Contents, then Getting Started with Extract Schema Designer.

Extract Schema Designer Tutorials List

Step-by-Step Tutorials for Learning Extract Schema Designer

Extract Schema Tutorial 1 - The Basics

Extract Schema Tutorial 2 - Tagged Data and Automatic Features

Extract Schema Tutorial 3 - Columnar Data

Extract Schema Tutorial 4 - Floating Tags

Extract Schema Tutorial 5 - Columnar Data with a Footer

Extract Schema Tutorial 6 - Variable Length Multi Line Data Fields

Extract Schema Tutorial 7 - Multiple Accept Records

ADDITIONAL SAMPLES

Data integration project scenario samples are provided with the products to illustrate real-world uses. Pervasive Data Integrator™ must be installed to work with the samples. To find the samples, open Map Designer or Process Designer, go to the Help Menu in the Toolbar and select Samples – then follow instructions.

Basic Samples

1. Using Conditional Put Actions with Event Handlers
2. Filtering Source Data
3. Sorting Source Data
4. Standardizing Multiple Date Formats
5. Writing Reject Records to a File
6. Using DJX to Pass Variables to a SQL Stored Procedure

Intermediate Samples

7. Using Global Variables in Transformations
8. Using the FileList Function in a Process
9. Mapping from One Record Type to Many
10. Mapping Database Records to EDI
11. Setting onDataChange Events
12. Using Buffered Put Tree to Create Hierarchical Records
13. Handling Errors in a File Folder Queue Process

Advanced Samples

- 14 Aggregating Records
- 15 Manipulating Binary Dates at the Bit Level
- 16 Complex Date Filtering
- 17 Working with DJRowSet and Arrays
- 18 Dynamic SQL Lookup
- 19 Dynamic SQL Lookup with Error Handling
- 20 Dynamic SQL Lookup with Reject Records Handling
- 21 Using EDI X12 Batch Transaction Iterator to Read Messages
- 22 Mapping Two Joined Source Types to a Target
- 23 Listening for Messages with File Folder Queue (FFQ)
- 24 Web Service Invoker
Web Service Invoker – Message Component Framework - **for Process Designer**
(see Process Designer Help Contents: Sessions Types, Invoker Sessions and the *Message Component Framework (MCF) User's Guide.*)

TRAINING AND SERVICES OPTIONS

Pervasive Software offers an extensive array of training options to assist you and your team with a much deeper and more formal education for using the Pervasive Data Integration products. Courses include developer proficiency training, planning and consulting services, and design optimization services. Please contact your sales account executive for more information.

SUPPORT FOR QUESTIONS WHILE REVIEWING THE PRODUCTS

We're delighted that you took the time to review one or more of the Pervasive Data Integration products!

Should you need assistance with any aspect of your review, please contact Pervasive pre-sales support at:

- 800.287.4383
- 512.231.6000
- www.pervasive.com/support to fill out a web form requesting assistance and to read about other support options.

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