MICRO FOCUS

Micro Focus
Net Express® with .NET

data sheet

Micro Focus Net Express provides a complete environment for quickly building and modernizing COBOL enterprise components and business applications for Microsoft® .NET, client/server platforms and the Web.

Overview

Micro Focus Net Express® with .NET is a COBOL development environment that takes core business processes and extends them to the .NET Framework and other distributed platforms. Using Net Express with .NET you can quickly construct enterprise components and services from your existing business logic and use these to develop new Microsoft® .NET, web or client/server applications across your distributed enterprise. Net Express provides an environment both to build new applications and leverage proven business logic, data and programming resources, dramatically reducing the development cycle and accelerating deployment of contemporary business applications.
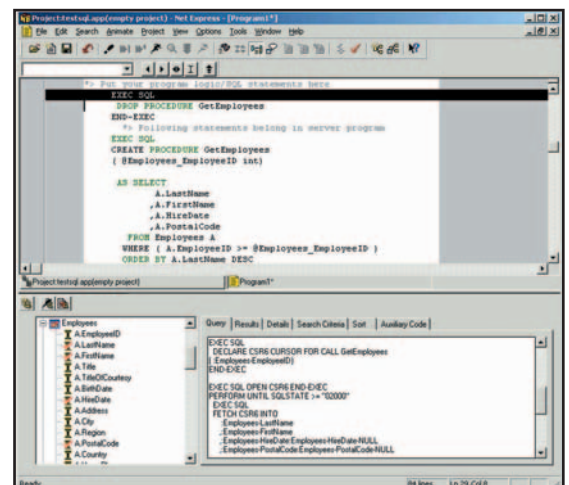
Create, Reuse and Extend COBOL Assets under Microsoft .NET

Net Express with .NET elevates COBOL to a "First Class Citizen" within the .NET Framework. Existing COBOL business logic and data access can be reused under the .NET Framework opening up the capabilities of .NET to existing COBOL assets. Once under the .NET Framework, applications can be extended and new application code created that utilizes .NET Framework classes and features. Net Express with .NET adds COBOL support into Microsoft Visual Studio® .NET 2003 allowing Visual Studio to be used for both standalone COBOL applications and as a single development environment for the development of composite COBOL/Visual Basic®/Visual C#®/Visual C++® applications.

Web Services

Net Express provides support for direct COBOL Web services, delivering the ability to create, consume and deploy Web services without requiring third-party software. With no additional programming, a COBOL component can be transformed into a Web service, delivering existing business logic for use and reuse in applications and systems across multiple platforms and languages. The COBOL Web service created by Net Express is deployed with Micro Focus Enterprise Server and can be consumed across the enterprise by Microsoft .NET clients, Java environments and COBOL itself, using the Web service client support in Micro Focus Net Express and Server Express.™ (1)

OpenESQL Assistant enables programmers to quickly prototype and test SQL statements through a point-and-click interface.

NET Express with .NET

COBOL Componentization for J2EE

Using Net Express COBOL/Java interoperability, Java programs can call COBOL while COBOL can invoke Java objects. The Net Express Interface Mapping Toolkit also exposes existing COBOL interfaces as an Enterprise JavaBean (EJB) that can form part of a composite COBOL/Java solution. When deployed with Enterprise Server and the Micro Focus J2EE Connector, COBOL applications can be leveraged in a J2EE-compliant manner from a Java application server such as IBM WebSphere® or BEA WebLogic®.

Scalable Application Development and Deployment

Net Express provides a highly productive development environment allowing you to create and maintain Windows or multi-tier distributed applications.

Micro Focus Application Server™ provides a high performance, robust, proven and portable platform for the deployment of Net Express COBOL applications to Windows and the .NET Framework, UNIX and Linux.

Enterprise Server provides a scalable, managed and high performance transactional environment for the deployment of COBOL services, COBOL/J2EE applications and direct COBOL Web services to Windows®, UNIX and Linux.

Re-hosting and Migration

Net Express delivers legacy extension and integration through re-hosting of existing applications and deploying them on Windows, the .NET Framework, UNIX and Linux platforms. Net Express migrates your proven COBOL applications, protecting your investments while reducing risk.

Highlights

Choice of Powerful Development Environments

For applications to be deployed into the .NET Framework Net Express with .NET integrates COBOL into Visual Studio providing COBOL sensitivity in editing, debugging and Project Handling. For applications to be deployed on Windows outside of the .NET Framework or on UNIX, Net Ex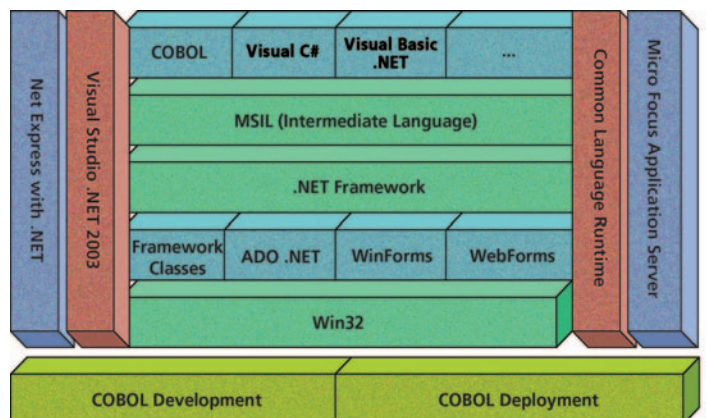press provides a sophisticated IDE that incorporates a complete suite of application development tools and wizards. Powerful project handling capabilities simplify the edit, compile and debug cycle, and an editor tailored to the needs of COBOL programmers makes it easy to modify code.

State-of-the-Art COBOL Compiler for Net Express

• High-performance native code that can be optimized for peak performance on specific hardware platforms

• Compilation to Microsoft Intermediate Language (MSIL)

• Extensive COBOL dialect support that makes it easy for you to re-host existing applications

• Scalability, ranging from standalone PCs to multi-processor UNIX systems[2]

• Full support for object oriented COBOL (including ISO2002 Syntax) and COBOL development/debugging

• UNICODE support for global applications

Test Coverage

It may often be difficult to verify that subsequent testing has actually exercised the changes made when code changes are made to complex applications. The new Test Coverage utility supports the COBOL developer in unit testing application changes and the QA department in 'White-Box' testing. Test Coverage traces and records the execution of a COBOL program line-by-line for single or cumulative program runs, supporting the creation of a text or HTML report displaying program execution and highlighting untested code blocks.

Creating, Extending and Reusing COBOL in Microsoft .NET

COBOL within the Microsoft .NET Framework

Using Net Express with .NET, COBOL applications will compile to MSIL (Microsoft Intermediate Language) and execute in conjunction with the Microsoft CLR (Common Language Runtime).

With this support, not only can new COBOL applications be created that will have access to the .NET environment, but also existing COBOL investments that define many business systems can be utilized under the .NET Framework including:

- Reuse existing COBOL business logic and data access across the .NET environment

- Access .NET Framework classes and features from COBOL applications including WinForms and WebForms

- Create and extend composite applications consisting of COBOL, Visual Basic .NET, Visual C#, Visual C++ and ASP.NET

Support of procedural COBOL within the .NET Framework is complemented by extensive support of object oriented COBOL allowing COBOL classes to inherit classes written in other Microsoft .NET languages and vice versa. ISO2002 object oriented COBOL support is supplemented by specific extensions such as new TRY …. CATCH syntax to facilitate exception handling in COBOL.

COBOL Integrates with Visual Studio .NET

Net Express with .NET integrates COBOL with Microsoft Visual Studio .NET by combining the ease-of-use and familiarity of Visual Studio with the power and usability of COBOL, to deliver a strategic development environment including:
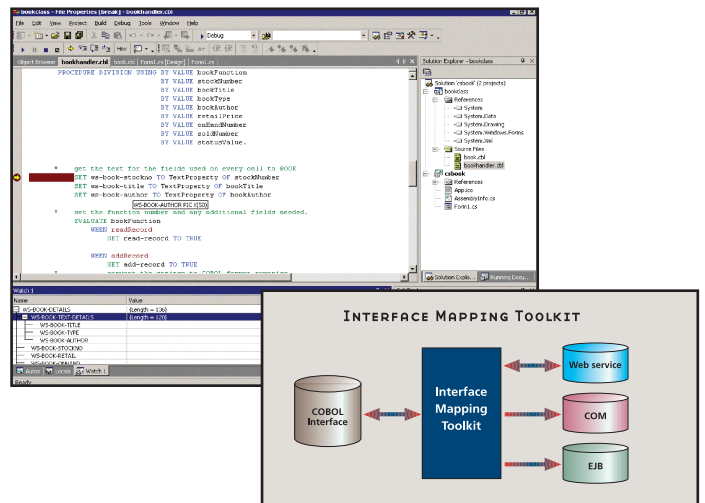
- Easily build and maintain Visual Studio .NET COBOL projects with your existing Visual Studio .NET 2003 or out-of-the-box using the Visual Studio .NET Premium Partner Edition bundled in Net Express with .NET

- Net Express with .NET adds COBOL intelligence into Visual Studio .NET including:

  - Pre-supplied COBOL project types for COBOL Windows, Console, Class Library or ASP.NET Web service applications with the ability to add your own COBOL project type

  - COBOL language colorization when editing and debugging
  - 'Intellisense' prompting to aid development of both procedural and object oriented code
  - Information provided when hovering over COBOL variables
  - COBOL sensitive debugging including watch Windows, breakpoints, and much more
- Seamlessly debug between COBOL and other Microsoft .NET languages such as Visual C# or Visual Basic .NET

Building Enterprise COBOL Components and Services

Interface Mapping Toolkit

Using the Interface Mapping Toolkit within Net Express, an existing COBOL program interface can be exposed as a Web service, EJB or COM component supporting the re-use and extension of COBOL assets. The COBOL program interface presented to the Interface Mapping Toolkit can be tailored and narrowed to present the appropriate functionality for the users of the service, for example, some fields may be deleted and set to default values before an existing program is exposed as a Web service. The mapping created for each Service Definition by the Interface Mapping Toolkit may be re-imported later for subsequent updates as required.

COBOL development under Visual Studio .NET

Direct COBOL Web Services

Using Net Express support for direct COBOL Web services, a COBOL Web service can be created, consumed and deployed without requiring any third-party software. The Interface Mapping Toolkit will create the files required to expose a COBOL Linkage Section as a Web service, including the Web Service Definition Language (WSDL) file and the appropriate mapping.

Direct COBOL Web services created with the Interface Mapping Toolkit can then be deployed with Enterprise Server, which acts as a SOAP Server for Web services. This provides a scalable transactional environment for the reliable execution of COBOL Web services.

Net Express also includes Web service COBOL client support for the consumption of Web services from COBOL. Using this support, a template COBOL client program can be built from a standards-based WSDL file (for example – a Web service created by .NET or IBM WebSphere) or a Micro Focus mapping file.

Using COBOL with Java and J2EE

With Net Express support for COBOL/Java interoperability, mixed COBOL and Java applications can be easily created without the programmer having to code complex low-level interfaces. Net Express COBOL/Java interoperability extends the business rules represented in COBOL assets to Java and J2EE applications.

The Net Express Class and Method wizards make it easy to write classes in COBOL that can be called from Java programs as though they were Java classes. COBOL data types will automatically be converted to and from Java data types.

When an EJB is created by the Interface Mapping Toolkit and deployed in conjunction with Enterprise Server and the J2EE Connecter, then COBOL assets can be accessed in a J2EE-compliant manner from Java Application Servers such as IBM WebSphere and BEA WebLogic.

Using COBOL with XML

With the new COBOL/XML support it is now very easy to create, consume or update XML documents from COBOL. Based on COBOL File Handling syntax, Net Express lets you OPEN, READ and WRITE XML documents in a familiar and

trouble-free way. Specific syntax extensions provide mechanisms to handle dynamic XML documents, map XML tags to COBOL data names, and process XML concepts such as name spaces and attributes. A W3C compliant XML Schema can be mapped and narrowed to and from a COBOL interface using the COBOL/XML conversion tool (CBL2XML).

Production Debugging and Diagnostics Tools

- FaultFinder Utility – designed to diagnose the problem if applications fail in production by providing a snapshot at the time of the abnormal termination.

- Profiler Utility – creates a report analyzing the performance of a COBOL application.

- Enterprise Server – maintains a Trace File for problem diagnosis.
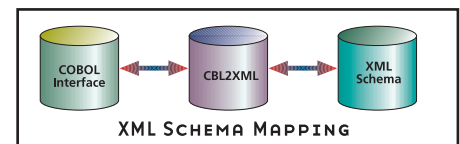
Web Application Development Tools

Internet Application Wizard

The Internet Application Wizard improves developer productivity by reducing the time it takes to create server-side applications and associated HTML forms from existing COBOL programs or relational databases. Once the application has been created, you can use it as is or modify it using Form Designer.

Form Designer

With Form Designer you can create user interfaces for web

COBOL Interface ⟷ CBL2XML ⟷ XML Schema

XML SCHEMA MAPPING

applications using HTML page and form editing and then generate the appropriate web server program using the Internet Application Wizard. Form Designer's HTML page and form editing provide an open work environment through features such as: support for multiple web browsers, WYSIWIG in-place HTML editing, flowing text, text formatting, tables, drag-and-drop positioning, multiple undo/redo support and tree views. Form Designer provides support for adding ActiveX Controls, JavaBean components and Java applets to your HTML pages. Script Assistant enables you to add behavior to an HTML page without invoking a server-side program or learning a complex script language.

Integration with Server Express on UNIX

Net Express is tightly integrated with Micro Focus Server Express for UNIX and Linux platforms. Programmers can develop applications on the PC, utilizing the advanced development tools in Net Express, while enjoying the benefits of a UNIX/Linux production environment.

- UNIX Application Import Wizard allows UNIX/Linux developers to quickly and easily import a UNIX/Linux application into a Net Express project

- UNIX Publish allows you to transfer the application project to a UNIX/Linux server, create the make file and rebuild it with a single step

- Remote Debugging allows you to use the Net Express Animator® to remotely debug a UNIX/Linux application published to Server Express

- Access to UNIX/Linux is simplified with the Powerterm terminal emulator included with Net Express, and seamless file and printer access is enabled through the SAMBA remote file access software

- Dialog System™ (character-based version) is provided to support development and maintenance of application screensets for deployment under UNIX/Linux
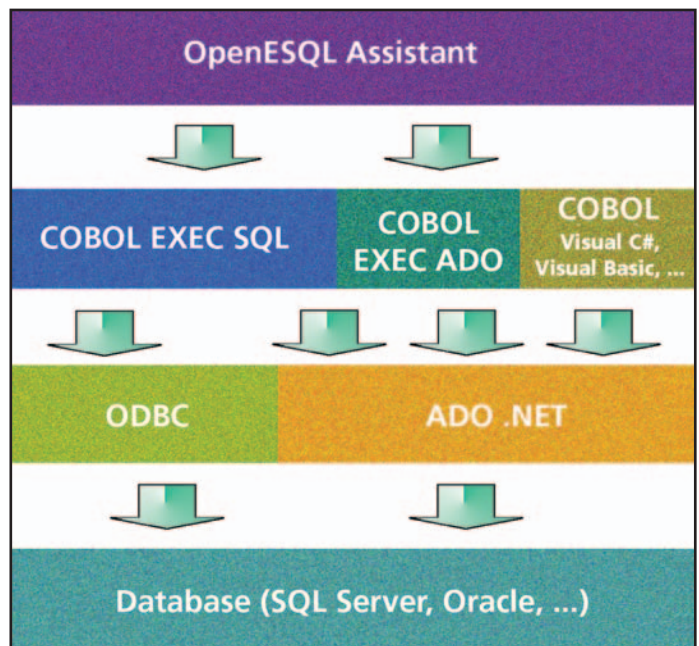

Data Access

OpenESQL™

OpenESQL transparently translates embedded SQL statements into ODBC API calls, allowing you to easily develop applications that access different database systems. This means that you can use any data source for which an ODBC driver is available. Net Express also supports native access to DB2, as well as integrated support for pre-compilers from Oracle and Sybase.

OpenESQL Extended to ADO.NET

Net Express with .NET facilitates Managed Data Access without code change by mapping existing OpenESQL applications to ADO.NET. Such applications can be rapidly and easily extended in COBOL using OpenESQL's EXEC ADO syntax. EXEC ADO statements mimic the standard embedded SQL statement format, making the construction

of a robust, flexible ADO.NET program in COBOL simple and effective. You can share ADO.NET datasets across languages using new EXEC ADO syntax substantially enhancing data exchange across composite applications.

OpenESQL Assistant

OpenESQL Assistant enables the programmer to build SQL statements through a point-and-click interface. These are then automatically inserted into the COBOL source code at the appropriate point. Programmers can even test the SQL statement in the OpenESQL Assistant, allowing them to see the results of the statement and modify it, if appropriate, without having to build and run the application.

SQL Option for DB2

The SQL Option for DB2 in Net Express complements existing data access provisions in the product, giving users topology choices for the greatest development flexibility.

The Micro Focus XDB relational database is integrated into Net Express, providing a highly compatible local or LAN-based emulation environment for DB2 development, including an XDB ODBC driver, a set of tools for viewing XDB schemas, creating copybooks, testing queries, and migrating data between database.

Technical Specifications

Hardware/Software Requirements

- Intel Pentium II processor or higher recommended

- Windows Server™ 2003, Windows® XP/2000/98, or Windows NT® v4.0 with Service Pack 6a or later

- 64MB memory (128MB or higher recommended)

- CD-ROM drive, either locally or via a network

- 90MB hard disk space for the base installation, 300MB recommended for full installation

For Training and Consulting information, visit www.microfocus.com.

Micro Focus – Unlocking the Value of Legacy™

Micro Focus is a leading provider of legacy development and deployment software for enterprise platforms. Micro Focus enables organizations to reduce costs and increase agility with minimal risk by reusing their legacy applications with contemporary architectures and Web services. Founded in 1976, Micro Focus is a global company with principal offices in the United Kingdom, United States and Japan. For more information, visit **www.microfocus.com**.

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1   Micro Focus Server Express is a companion product for COBOL applications deployed on UNIX or Linux.

2   Requires Micro Focus Server Express for appropriate UNIX/Linux platform.