

# MICRO FOCUS NET EXPRESS® PROFESSIONAL

Net Express provides a complete environment for understanding, constructing and modernizing COBOL enterprise components and business applications for client/server platforms and the Web.

## OVERVIEW

Micro Focus Net Express® is a COBOL development environment that takes core business processes and extends them to the Web and other distributed platforms. Net Express Professional combines Net Express and Micro Focus Revolve® technology to provide a complete COBOL application understanding, analysis and development environment. With Net Express Professional, time to market is accelerated and costs reduced because every developer can exploit the analysis capabilities of Revolve on a daily basis. Using Revolve, you can build a complete module-level inventory of an existing application and view that application both at system and component level with the click of a mouse. With this information at your fingertips, you can use Net Express' comprehensive set of tools to quickly construct enterprise components and services from your existing business logic and use these to develop new 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, reducing the development cycle and accelerating deployment of contemporary business applications.

## Web Services

Net Express now 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 Net Express and Micro Focus Server Express.™ (1)

## COBOL Componentization for .NET and J2EE

Net Express wizards and tools can be used to build COBOL COM objects that can interoperate with Windows applications, including Microsoft .NET languages such as C# or Visual Basic.

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.

## Share Data Across Disparate Applications with XML

The Net Express COBOL/XML support allows you to consume, create or update XML documents from COBOL, facilitating Business to Business (B2B) and Business to Commerce (B2C) transactions and providing you the ability to share data with other applications and systems that have no direct interface with your COBOL system.

## 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, Linux and UNIX.

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, Linux and UNIX.

## Re-hosting and Migration

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

## Application Understanding and Analysis

The capabilities within Revolve allow programmers to quickly develop a comprehensive understanding of existing or new applications and to gather, organize, and refine the application research information they require prior to making changes to the application. Using powerful graphical tools, Revolve presents a comprehensive and electronically accurate picture of the operational mechanics of business systems. Greater precision of analysis can be achieved in shorter timescales by enabling developers to think and work visually. Time to market is accelerated by dramatically reducing the initial time taken to perform complete impact analysis up-front before changes are applied, thereby minimizing re-work required when problems are detected in later test phases.

## HIGHLIGHTS

### Powerful Development Environment

Net Express 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

The compiler in Net Express provides:

- High-performance native code that can be optimized for peak performance on specific hardware platforms.
- 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.<sup>(2)</sup>
- Full support for Object Orientated COBOL (including ISO2002 Syntax) and COBOL development and debugging.
- UNICODE support for global applications.

## Advanced Debugging Support Using Animator®

- Full control over the debugging process. You can single step, run to a particular location and reset the execution point to any statement in your code.
- The ability to examine and change any data item in the program during execution.
- Just-In-Time (JIT) animation – if your application fails while it is running, Net Express can be automatically started at the point in the source code where the error occurred.
- Multi-threaded application debugging – freeze, thaw, or activate specific threads. Set breakpoints within threads.

## Test Coverage

When code changes are made to complex applications it may often be difficult to verify that subsequent testing has actually exercised the changes made. 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.

## Production Debugging and Diagnostics Tools

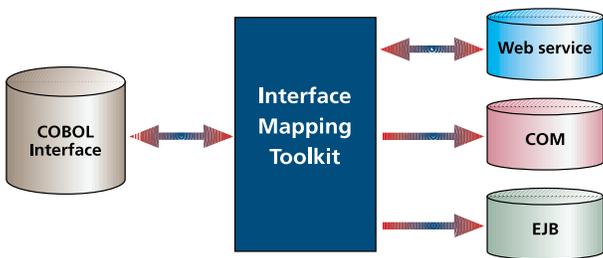
- FaultFinder Utility – designed to diagnose the problem if applications fail in production by providing a snapshot at the time of the abnormal termination.
- Profiler Utility – creates a report analyzing the performance of a COBOL application.
- Enterprise Server – maintains a Trace File for problem diagnosis.

## 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 reuse 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.

#### INTERFACE MAPPING TOOLKIT



### 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 Web Services Definition Language (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

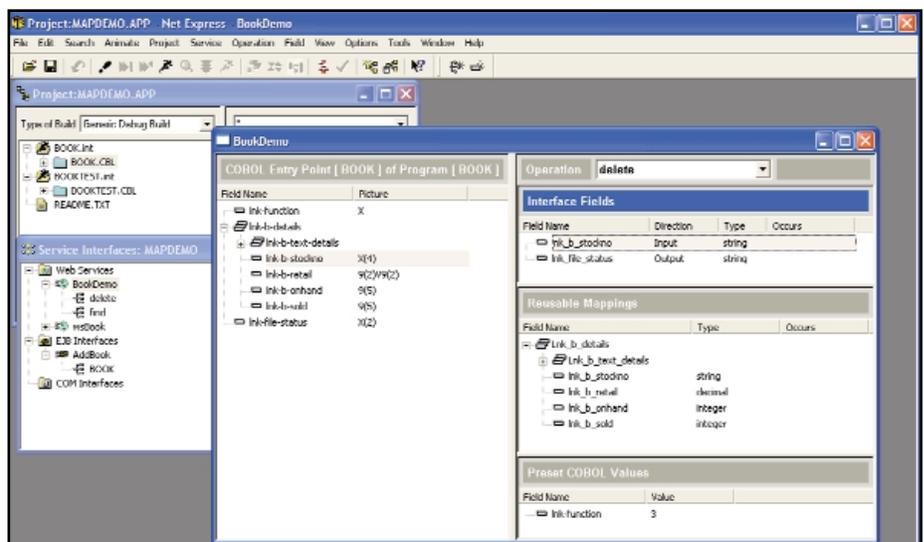
With the Net Express support for COBOL/Java interoperability, mixed COBOL and Java applications can be easily created without the programmer having to code complex low-level interfaces. Net Express COBOL/Java interoperability extends the business rules represented in COBOL assets to Java and J2EE applications.

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 Connector then COBOL assets can be accessed in a J2EE-compliant manner from Java Application Servers such as IBM WebSphere and BEA WebLogic.

### Scalable Transactional COBOL Deployment with Enterprise Server

Micro Focus Enterprise Server provides a scalable, managed and transactional deployment environment for COBOL services. In addition to the deployment of direct COBOL Web services and COBOL/J2EE applications, Enterprise Server acts



The Interface Mapping Toolkit functionality within Net Express enables programmers to expose an existing COBOL program interface as a Web service, EJB or COM component with a simple point-and-click interface.

as an overall COBOL deployment environment for service-orientated applications. With Enterprise Server, transactional COBOL applications can be deployed in a managed environment without the purchase of third-party software. Enterprise Server includes Container Managed Transaction support, providing transactional support for COBOL applications without the requirement to manually add transactional syntax or commands. The Enterprise Server Administration facility provides the ability to deploy, start, stop and exercise overall control of the execution of services within Enterprise Server.

### Microsoft .NET Interoperability Through Support for COM(+) Objects

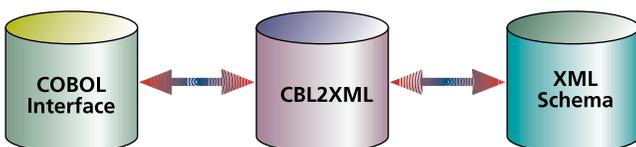
Net Express provides complete support for accessing COM Objects written in any language from COBOL, allowing you to use desktop applications (Microsoft Word and Excel) to automate business functions such as report generation. You can also turn existing COBOL business logic into a COM object that can be accessed by other applications.

The Interface Mapping Toolkit will create a COM Object from an existing COBOL interface while the Class Wizard automatically generates the interface needed for a new COM object into which you can drop in your existing code. With .NET interoperability, by building COBOL COM wrappers to existing code, COBOL assets can be accessed from a web or GUI front-end written in languages such as ASP .NET or Visual Basic .NET.

### 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).

#### XML SCHEMA MAPPING



### Support for IBM TX Series

Net Express allows you to develop, build and debug COBOL CICS applications that run with IBM TX Series. Net Express ensures consistent and predictable dynamic loading of COBOL subroutines, management of COBOL Working-Storage through multiple levels of called and linked programs and enhanced handling of messages between WebSphere and COBOL.

### Using COBOL with C or C++

Mixed-language applications can be created easily using Net Express and appropriate third-party development environments for other languages such as C and C++.

## APPLICATION UNDERSTANDING AND ANALYSIS

### Inventory and Research

Revolve's Automatic Component Locator searches for all program modules that comprise an application and creates a Revolve database containing information on copybooks, screens, files and databases. The result is a comprehensive inventory that identifies all application components and how they are related, even for applications missing significant source code. This information can then be represented in graphical views created by Revolve at both the system and component level of an application, enabling programmers and analysts to visualize the relationships between application components.

### Application and Code Analysis

Programmers can use Information Browsers to look up information about application programs, copybooks, screens, files and databases, variables, paragraphs and statements — including where variables are used, which direction I/O is flowing and how the program components interact. This enables users to interactively explore where and how a specific item is used throughout an application, providing a deeper level of application understanding, and enabling users to isolate data access, user interfaces and program logic. Programmers can highlight areas of code for later attention by creating Points of Interest (POI) files within Revolve that can subsequently be imported into Net Express.

## Impact Analysis

Revolve's impact analysis engine automatically assesses the ripple effect of a modification on other application programs, variables, screens and files, and databases. This enables users to identify the full impact of a change on other components in the application, as well as within other applications that may share that component, thus reducing the risk of finding errors later in the development cycle, or worse, in production.

## Graphical Documentation and Reporting

In addition to viewing application information interactively in real-time, Revolve includes various reports on the results of application research. These reports include cross-reference reports, record analysis, potential syntax problems and reports on unused code. Alternatively, graphical views can be copied in other reporting media such as Microsoft Word, such graphical views of an application inventory automatically comprise documentation of an application's components. Revolve also enables programmers and analysts to measure code quality and complexity by creating reports using models such as McCabe, McClure, Halstead and Function Point Analysis.

## 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

Form Designer enables you to create a working web application in minutes, ready for you to add COBOL logic to perform the business processing of the application. You can create user interfaces for web applications using HTML page and form editing and then generate the appropriate web server program using the Internet Application Wizard.

## 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.

- The 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 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. The programmer 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.

## COBOL File Handling

With Net Express you can harness all the power of COBOL's built-in file handling system. The file system can handle very large sequential, relative, line sequential and indexed files beyond 2GB in size.

## Integrated Data Tools

- Data File Editor – examine data files to see how an application has updated them, or create and edit a file to provide test data for an application.
- Data File Converter – change formats/character sets.
- Record Layout Editor – specify the layout of a data file for display and editing by the Data File Editor.
- Fix File Index Facility repairs/rebuilds indexed files.
- Codecomp Utility for EBCDIC/ANSI character set translation enables you to customize character-mapping tables.

## WINDOWS GRAPHICAL USER INTERFACES

### Dialog System

Dialog System makes it easy for COBOL developers to create sophisticated Windows graphical user interfaces featuring Windows and ActiveX controls.

### Windows GUI Application Wizard

Using this wizard, you can quickly create a native 32-bit Windows interface graphical application with capabilities such as MDI windows, embedded ActiveX controls, spin button, tree view and more. You can also use a point-and-click interface to build a GUI application with ODBC data access.

## 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 5 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](http://www.microfocus.com).

Micro Focus is the fastest, most effective way to migrate, extend, develop and deploy enterprise applications. As the industry standard for COBOL, Micro Focus enables organizations to maximize ROI while reducing development costs for accelerated business success. 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](http://www.microfocus.com).

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

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

