MICRO FOCUS
FOCUS

Micro Focus
Mainframe Express® Enterprise Edition

Micro Focus' unified environment for mainframe development significantly reduces risk and cost, and offers improved business agility through extension to J2EE, .NET and Web services. Aligning IT to the business with improved application delivery will yield a more impressive ROI.

Overview

Reducing overall cost and risk, while at the same time transforming their business to support growing needs, is the key struggle faced by many organizations today. As the business landscapes change, greater and greater emphasis on operational efficiency is being placed on IT:

- To remain competitive, businesses require IT to deliver systems faster and for less cost
- Business system functionality needs to be delivered to multiple channels, including the Web, quickly and easily
- Return on investment needs to be maximized by reusing existing assets, skills and applications
- Lowering existing costs is the key to business agility and innovation

Micro Focus' unified environment for mainframe development significantly reduces risk and cost, and offers improved business agility through extension to J2EE, .NET and Web services. Aligning IT to the business with improved application delivery will yield a more impressive ROI.

Uniquely created to run your business, your legacy systems are a major corporate asset. By allowing you to maintain, develop and extend your legacy, while at the same time reducing cost and risk, Micro Focus Mainframe Express® Enterprise Edition unlocks the value of your legacy to meet the needs of the future. Mainframe Express Enterprise Edition[1] is *the* environment for mainframe application delivery.

Benefits

Accelerated Business Results

Mainframe Express Enterprise Edition provides developers with the ability to design and create applications from scratch far faster than by traditional coding practices. Developers can then code, assess, modify and test mainframe-based applications in significantly less time than using traditional tools. Resultant applications can then be seamlessly transferred to the host for execution, or can be transformed into Web services at the click of a button. Irrespective of the task, Mainframe Express Enterprise Edition streamlines the whole application life cycle by providing a rapid, highly productive, modern development environment.

Reduced Risk of Failure

Highly productive tools provide development teams the ability to improve the quality of resultant applications, thereby keeping the risks of system downtime or incorrect function to a minimum. Being able to create syntactically correct applications from scratch builds high quality applications at the outset. Being able to fully understand all relationships, variables, files, and other system artifacts, within the most productive editing and debugging tool available, using best-in-class testing facilities, ensures the application is of the highest quality possible, vastly reducing the risk of production downtime. The ability to expose key transactions, without changing the original

application, as Web services or e-business components, is far less risky than attempting to create them by alternative means. Finally, no matter whether your developers use native COBOL or application generation (or both), Mainframe Express Enterprise Edition provides a unified environment that provides everything they need.

Greater Organizational Agility

In today's organization, key skills are at a premium, but so is remaining flexible - today's mainframe applications could be required tomorrow as Web services, .NET components or Enterprise Java Beans. Mainframe Express Enterprise Edition supports legacy integration activities by allowing maximum re-use of legacy assets. These can be quickly regenerated to support a new subsystem, or redeployed as a Web service, a .NET object, or a Java Bean, without needing to touch the original application code. Flexibility, support for all new standards including WebSphere, and reduced complexity, means the Mainframe Express Enterprise Edition developer can produce traditional mainframe or Internet applications which remain open, maintainable and flexible. This agility to support the business now and into the future yields impressive benefits year on year.

Reduced Total Cost of Ownership

By using Mainframe Express Enterprise Edition, organizations can remove unnecessary costs from the equation. By moving the whole development process to the PC, Mainframe Express Enterprise Edition releases costly mainframe resources, and negates the need for expensive mainframe based development tools and hardware upgrades. Mainframe CPU usage can be trimmed and IT costs greatly reduced by using the right platform for the right job.

Features

A complete mainframe application development and extension environment hosted on the PC, Mainframe Express Enterprise Edition will reduce IT costs by including capabilities to allow generation, analysis, compilation, debugging and unit testing of your applications on workstations, and will also allow you to expose existing business transactions on your choice of platform.

Full Application Life Cycle Support on the Desktop!

Mainframe Express Enterprise Edition has been designed to support all phases of the mainframe application development life cycle, from initial application design and generation, through analysis, development, compilation and debugging phases, to unit testing and deployment. All of this support is provided on the most productive programming platform available – the PC workstation, as a fully integrated product . Each key phase and how it is supported within Mainframe Express Enterprise Edition is summarized below.

Application Generation

Organizations using the application generation paradigm to develop their applications will greatly benefit from the inclusion of Micro Focus' application generation technology within Mainframe Express Enterprise Edition. Existing application specifications can be imported into Mainframe Express Enterprise Edition and continue to be developed and maintained. The openness of the generated COBOL applications, and the staggeringly productive development cycle, are further enhanced by the ability to automatically compile, debug and test the resultant applications within the same environment, further reducing the burden on the mainframe.

Analysis

To ensure resultant code quality is high and errors are not introduced, developers must understand the changes required before they attempt to make them. "Application intelligence" built into Mainframe Express Enterprise Edition projects allows developers to learn more about their application structure and therefore reduce the risk of introducing errors. Analysis of both native COBOL and AppMaster Builder projects is supported.

Some of the analysis capabilities available to the programmer include:

- Context sensitive information about variables, files and other key application information is proactively presented in an application suggestion window, which will automatically provide the additional information the programmer needs.

- The ability to capture items of interest (lines of code, variable definitions, entire files) to a separate "work set", allowing an element of management and control over programming and analysis tasks. Work Sets can be shared among colleagues for a team-oriented activity.

- A code flow analysis capability that allows programmers to ask sensible questions of the code. "Where are all the places this variable could have been modified?" or "Where else in the application is this macro used?" can be supplied simply, correctly and quickly.

- Graphical representations of the application structure give automatic documentation power to the developer, who can visualize the application structure as never before.

Development

Mainframe Express Enterprise Edition IDE provides integrated access to all of the tools needed to develop, maintain and test applications deployed on the mainframe – and to transform and test new e-business functionality. This high level feature integration streamlines and simplifies common maintenance, support and development tasks.

- During the edit, compile and debug cycle, developers edit source code using a state-of-the-art graphical source editor.

- Best-in-class debugging facilities are available for COBOL source code and AppMaster Builder source code (S-COBOL) programs.

- Programs can be compiled by a single click on a toolbar button from within an edit session.

Mainframe Express Enterprise Edition includes a fast and powerful COBOL compiler designed to support mainframe COBOL applications by providing:

- Comprehensive IBM COBOL dialect support, including Enterprise COBOL for z/OS, COBOL for OS/390, COBOL for MVS, COBOL/370, VS COBOL II and OS/VS COBOL

- Support for IBM LE (Language Environment)

- Support of mainframe addressing modes for programs and data - AMODE(31) and DATA(24/31)

- Powerful diagnostics are available through integration between the compiler output and the COBOL editor

Testing

Mainframe Express Enterprise Edition provides advanced debugging features to help analyze the execution flow of applications and find and resolve code errors. These include:

- Total control over the debugging process. Developers can debug using single steps or multiple steps through the code, skip lines of code, run to a particular location and reset the execution point to any statement in their code – all with one mouse-click.
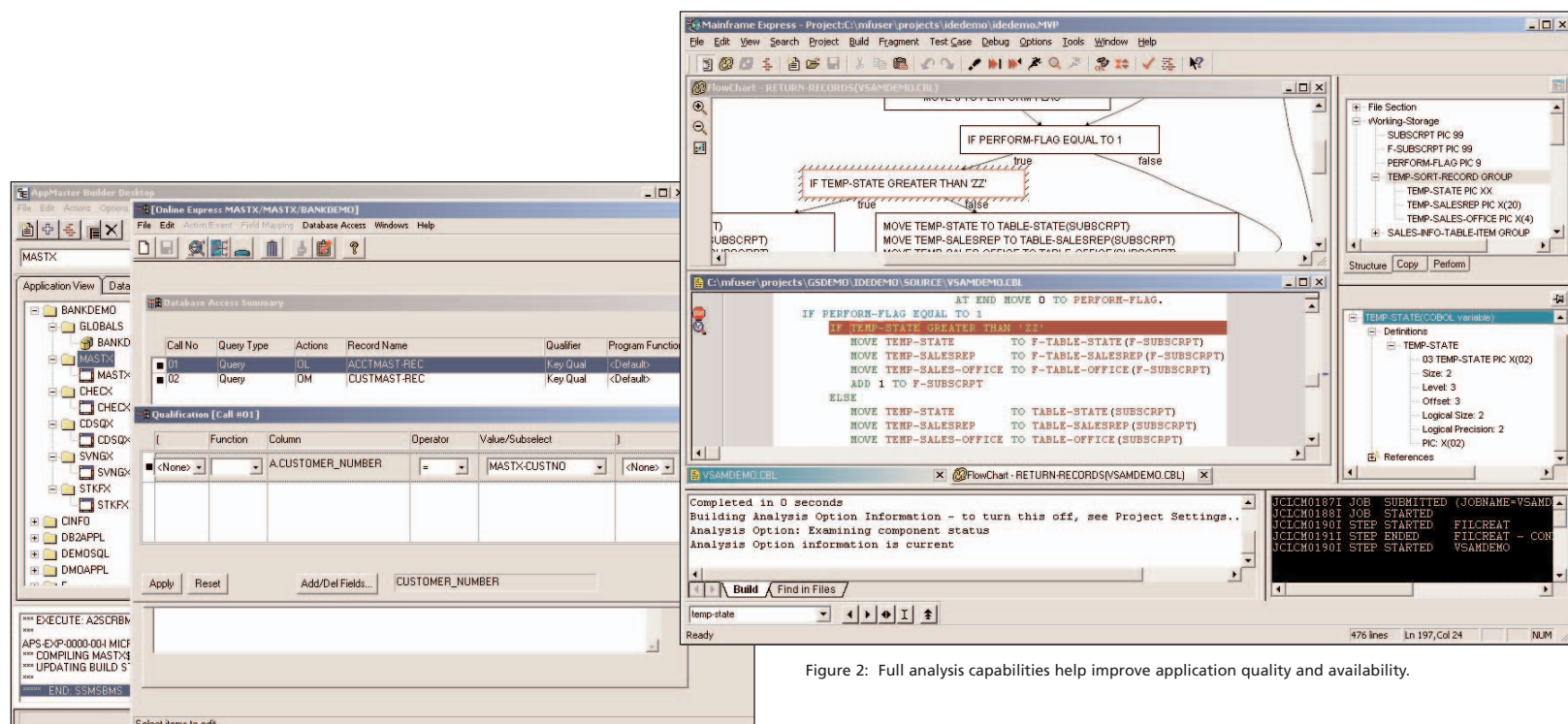

Figure 2: Full analysis capabilities help improve application quality and availability.

Figure 1: Application Generation is fully supported
to provide rapid development of applications.

- Ability to execute programs up to pre-determined debug breakpoints. A wide variety of advanced breakpoint options are available, and breakpoints can be set during edit sessions.

- Ability to execute an application up to predefined specific program. A list of just the programs to debug can be maintained. When the application execution encounters a program in the list, the debugger is automatically invoked. All other programs can be executed without debugger intervention, but are still available for problem diagnosis if required.

- Ability to examine and change any data item in the program during execution.

- Ability to debug native COBOL or S-COBOL according to your preference.

Other facilities to assist the programmer include:

- At any point during a testing session, source code can be modified without interrupting the cycle of edit/compile/test.

- Syntax errors automatically reposition the editor to the position within the source code where the error was detected.

- Testing can be started by submitting JCL, invoking an online CICS or IMS transaction or executing CLIST or REXX procedures with just a few clicks of the mouse.

The fact that Mainframe Express Enterprise Edition fully supports all relevant mainframe subsystems and standards, allows applications to be fully unit tested on the workstation.

Deployment and Extension

Mainframe Express Enterprise Edition supports the final life cycle phase by providing seamless deployment of tested applications, providing a drag-and-drop transfer facility and the ability to invoke remote host jobs.

With the component generation technology included in Mainframe Express Enterprise Edition, you can capture complete legacy application business processes and automatically generate reusable, industry-standard components in the form of Java Beans, EJB, .NET, XML, WML, Web services and J2ME. This enables mainframe assets to be extended into new applications, extending the life and value of those applications, without the risk of having to write new objects from scratch.

Supporting Your Mainframe Development Process

Effective Team-working

To allow developers to share source files, data and program executables, Mainframe Express Enterprise Edition provides application *work-grouping*. This capability is essential for secure, centralized team management and greatly simplifies the task of setting up a shared development environment for many users. With application *work-grouping*, developers can:

- Define multiple (up to 10 levels of) source, copy or load libraries that can reside on the LAN or the mainframe and be viewed by all the developers in the workgroup. This is equivalent to having concatenated mainframe datasets to support development and testing across multiple developers and teams.

- Define a steplib or concatenated search path for load library and copy library modules. The search order is easy to visualize and configure, allowing developers to perform unit testing and integration testing on their source code changes.

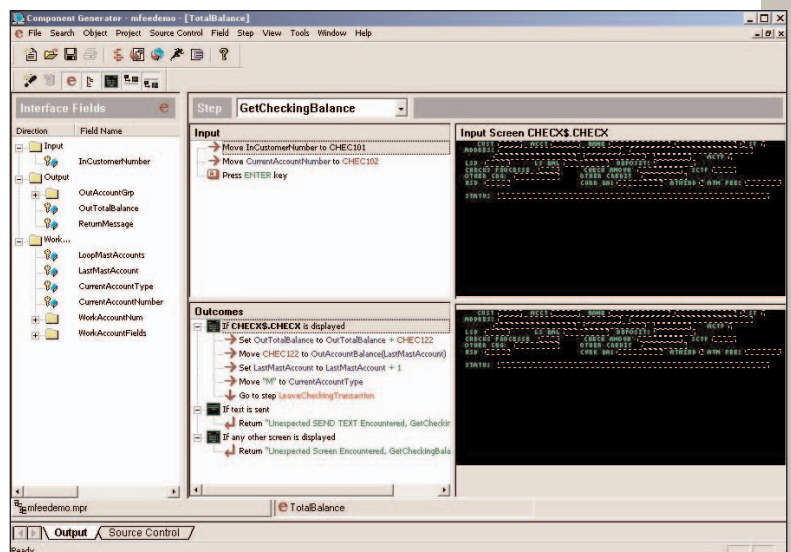- LAN or host based source code management system access is provided.

Figure 3: Existing business processes can be extended into Service Oriented Architectures without any recoding or retraining.

Support for Application Generation and Native Development Approaches

Not only does Mainframe Express Enterprise Edition provide existing COBOL developers with the most productive workstation environment for COBOL application development, maintenance and testing, but it also provides developers more familiar with application generator technology to continue to develop COBOL applications using this approach.

Full Host Connectivity

Mainframe Express Enterprise Edition includes facilities to provide seamless access to mainframe source and data resources. This is supported by additional mainframe software (included with Mainframe Express Enterprise Edition) and enables:

• Test data (eg. VSAM, QSAM, DB2 and IMS) and source code to be downloaded from the mainframe, or kept on the mainframe to be accessed directly from Mainframe Express Enterprise Edition

• Automated source synchronization between mainframe and LAN development libraries, including access to common configuration management systems such as CA-Endevor™ and Panvalet™

• Submission of JCL from Mainframe Express Enterprise Edition to be executed on the mainframe

• Viewing of the mainframe job output queue from the workstation, without the need to log on to TSO

Full Host Subsystem Support

Not only does Mainframe Express Enterprise Edition provide full life cycle coverage and effective host connectivity, but it also includes within the IDE, critical support for operating environment elements unique to the host, without which no programmer could be truly productive. Some of these elements include:

Data Manipulation

Mainframe Express Enterprise Edition includes a complete set of tools to manage test data. Using the data file editor, developers can define data structures and insert, update or delete data records quickly and easily. All standard mainframe data types are supported and can be edited directly from the Mainframe Express Enterprise Edition catalog. A formatted view of data records based on the COBOL data structure is provided, as well as a hexadecimal view of the data. Mainframe Express Enterprise Edition works with data in the EBCDIC character set to ensure compatibility with the mainframe environment.

Integrated Support for JCL and REXX

A full multi-step JCL engine with support for JES2 and JES3 is built into Mainframe Express Enterprise Edition. This allows developers to execute complete batch jobs on the workstation and take advantage of the following features:

• SDSF-like spool mechanism that captures and displays job output

• Emulation of the mainframe access method services utility (IDCAMS) that enables developers to manipulate workstation VSAM files using the mainframe language

• Emulation of mainframe sort and merge utilities

A fully compatible REXX and CLIST engine is also built into Mainframe Express Enterprise Edition. This allows a developer to edit and then execute their mainframe REXX and CLIST commands directly within the Mainframe Express Enterprise Edition IDE.

Mainframe Emulators

Mainframe Express Enterprise Edition allows real offloading of mainframe development tasks to workstations through unparalleled mainframe emulation technology. The following mainframe emulators are provided:

• CICS
• IMS
• DB2
• Assembler

These emulators provide all the necessary tools to allow the subsystems to be configured appropriately. Run-time support for debugging and testing purposes is also provided.

Recommended System Requirements

Workstation

- Windows 2000 or Windows XP Professional
- 600 MHz Intel Pentium 3 processor or better
- 256MB RAM or better
- 500MB free hard disk space (minimum)
- SVGA monitor (800x600 minimum resolution)
- CD-ROM drive (either local or on network)

Mainframe *(depending on the options used, not all of these items may be necessary)*

- S/390, S/370 or 100% compatible computer
- IBM OS/390 v2.4 or higher
- IBM VTAM v3.2 or later
- IBM RACF -or- CA-ACF2 -or- CA-Top Secret
- IBM TCP/IP for MVS v3.1 or later -or- CA-SOLVE:TCPaccess v4.1 or later
- IBM CICS v2.1.2 or later (for CICS Option and/or Mainframe Access Server CICS task)
- IBM DB2 for OS/390 v3.1 or later (for SQL Option and/or Mainframe Access DB2 extracts)
- IBM IMS/ESA TM Version 4 Release 1 or later (for Remote IMS Server)
- IBM VS COBOL II Release 4.0 or later (for Remote IMS Server)

About Micro Focus

Micro Focus is the leading provider of COBOL application development and deployment software for contemporary platforms and architectures. Micro Focus enables organizations to unlock the value of their legacy by reusing their business-critical assets, resulting in reduced costs, increased agility and minimal risk. 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.

---

[1] Mainframe Express Enterprise Edition incorporates legacy application development capabilities previously offered with Mainframe Express, provides an upgrade path for APS and AppMaster Builder users, and integrates additional functionality for application understanding and for capturing and exposing business transactions in Service Oriented Architectures.

877 772 4450
microfocus.com

Micro Focus Worldwide

Austria 0800 293 535
Australia 1800 632 626
Belgium 0800 11 282
Canada
   Ontario 1 905 824 7397
   Quebec 1 800 280 9487
France 0800 916 564
Germany 0800 182 5443
Ireland . . . . +353 1 469 3121
Italy 800 784 420
Japan . . . . +81 3 5793 8550
Luxembourg 800 23743
Netherlands . . . . +31 23 5689 138
Norway . . . . +47 22 91 07 20
Switzerland 0800 564 247
Sweden . . . . +46 8 545 13 390
United Kingdom 0800 328 4967
United States 1 877 772 4450
Other Countries . . . . +44 1635 32646

MICRO FOCUS