



# **Micro Focus Enterprise Test Server 2.2 Update 2**

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**Release Notes**

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# Micro Focus Enterprise Test Server 2.2 Update 2 Release Notes

These release notes contain information that might not appear in the Help. Read them in their entirety before you install the product.



**Note:** This document contains a number of links to external Web sites. Micro Focus cannot be responsible for the contents of the Web site or for the contents of any site to which it might link. Web sites by their nature can change very rapidly and although we try to keep our links up-to-date, we cannot guarantee that they will always work as expected.

Enterprise Test Server is a test execution environment that allows you to test mainframe applications on a low cost Windows platform. You can use variables or the tilde syntax can be used to relieve the mainframe test bottleneck by allowing you perform a substantial part of your application testing on Windows prior to moving the application back to the mainframe for final pre-production testing and deployment.

Enterprise Test Server supports IBM COBOL, High Level Assembler, CICS, IMS TM and DB, JCL, DB2, and z/OS file formats. It also supports common batch utilities such as SORT. This means that applications running under Enterprise Test Server behave just as they would on the mainframe, so you can perform a wide variety of pre-production testing activities on low-cost hardware rather than on the mainframe.

To configure Enterprise Test Server your development administrator will work with the development teams to set up the Enterprise Test Server environment on your central Windows test server, as follows:

1. Enterprise Developer is used to recompile application source code for execution on Windows.
2. Test data sets or databases are made available either locally or on the mainframe through remote access.
3. Development and test teams are trained to ensure that they understand how to test applications within the Enterprise Test Server environment and to switch between the different test regions it supports.

Enterprise Test Server comes in the following product variants:

- Enterprise Test Server which is the standard Test Server product and is a mainframe Test Execution environment.
- Enterprise Test Server Premium which provides two additional capabilities to extend the test execution platform:
  - Data Manager, which allows you to subset and mask mainframe data which is then available for testing under Enterprise Test Server.
  - Test Automator which is a test automation capability that allows you to create automated test suites that can be played back against Enterprise Test Server or against the host.

In addition, Enterprise Test Server comes in the following versions:

- Enterprise Test Server, which is the test execution environment for applications built using Enterprise Developer for Visual Studio 2010 and Enterprise Developer for Eclipse.
- Enterprise Test Server 2012, which is the test execution environment for applications built using Enterprise Developer for Visual Studio 2012.

## Micro Focus Heartbleed Update

The OpenSSL library used in this product has been updated to the latest version, 1.0.1i, to fix various vulnerabilities.

# Installation

## Installing

### System Requirements for Enterprise Test Server for Windows

#### Hardware Requirements

The disk space requirements are approximately:

Platform	Enterprise Test Server	Sentinel RMS License Manager
x86 Windows platforms	250MB	25MB
x64 Windows platforms	350MB	25MB



**Note:** This includes the space needed to cache information locally so that you can modify the installation without the original source media.

#### Operating Systems Supported

The following platforms are supported:

For a list of the supported operating systems, check the *Product Availability* section on the Micro Focus SupportLine Web site: <http://supportline.microfocus.com/prodavail.aspx>.



**Note:**

- This product can be installed on earlier versions of Windows but it has not been tested on them.

#### Software Requirements



**Note:** The setup file will check your machine for whether the prerequisite software is installed and will install any missing prerequisites and the product components. It will also install the Micro Focus Database Engine.

Before installing this product, you must have the following software installed on your computer:

- The Microsoft .NET Framework - the setup file installs Microsoft .NET Framework 4 with Enterprise Server, .NET Framework 4.5 with Enterprise Server 2012. You might need to install the following version of the .NET framework manually, if it is targeted by your applications:
  - Microsoft .NET Framework 2 - if your applications use the ILCLR(2) Compiler Directive or if they target the .NET Framework versions 2, 3 or 3.5. You might need to download these installers depending on the .NET Framework you are targeting.

To download the Microsoft .NET Framework 2 [click here](#).

Microsoft .NET Framework 2 or later is also required for the Micro Focus License Manager if you install this on a separate machine as a license server.
- Microsoft .NET Framework 4.5 might be required for COBOL applications created with Visual Studio 2012.

- Microsoft .NET Framework 4.5.1 might be required for COBOL applications created with Visual Studio 2013.



**Note:**

- .NET Framework 3 is provided with Windows Vista and Windows Server 2008.
- .NET Framework 3.5 is provided with Windows 7 and Windows Server 2008 R2.
- .NET Framework 4.0 is provided with Windows 7 and Windows Server 2008 R2.
- .NET Framework 4.5 is provided with Windows 8 and Windows Server 2012.
- .NET Framework 4.5.1 is provided with Windows 8.1 and Windows Server 2012 R2.
- Microsoft's Web Platform Installer 2.0 if your application targets ASP.NET 4. This installs and sets up ASP.NET. To download the installer [click here](#).
- A Web browser is required for Enterprise Server Administration in Enterprise Test Server.  
To use your Web browser offline, you need the dial-up networking feature of Windows installed. Otherwise you might have TCP/IP errors such as being unable find "localhost" or the numeric equivalent (127.0.0.1).
- To use Enterprise Server Administration, scripting or JavaScript support must be enabled in your browser. This is on by default in Internet Explorer in most Windows operating systems. Also, active content must be allowed and not blocked. To enable both these in Internet Explorer:
  1. Click **Tools > Internet Options**.
  2. On the **Security** tab, click **Custom Level**. In the **Scripting** section, under **Active Scripting**, click **Enable**.
  3. On the **Advanced** tab, scroll down the list to the **Security** section, and ensure the item **Allow active content to run in files on My Computer** is checked.
- Enterprise Server Help requires the Java Runtime Environment on some Windows systems to enable the Search facility to work.



**Important:** This release requires version 10000.2.990 or later of the Micro Focus licensing software. For local servers, you do not need to install it separately, as the setup file installs a new Enterprise Developer client and a new licensing server on the same machine.

If you have a network server, you must update the license server before installing the product as the client is not able to communicate with license servers of versions older than 10000.2.660. On Windows, you can check the version of your license server by clicking **Help > About** in the Micro Focus Licensing System Administration tool.

You can download the new version of the license server software from the Micro Focus SupportLine Web site: <http://supportline.microfocus.com>.

## Additional Software Requirements on Windows

To ensure full functionality for some Enterprise Test Server features, you might be required to obtain and install additional third-party software in addition to the prerequisite software installed automatically by the Enterprise Test Server setup file. The following information specifies the third-party software required for each feature.

- [Application server support for interaction with Enterprise Server](#) on page 6
- [Database Access](#) on page 7
- [Data Manager](#) on page 7
- [Micro Focus Rumba](#) on page 7

### Application server support for interaction with Enterprise Server

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Java EE 5 and Java EE 6 are supported for the deployment of EJBs generated using the Interface Mapping Toolkit, as follows:

- Java EE 5 includes support for EJB 3.0 and Java Connector Architecture 1.5
- Java EE 6 includes support for EJB 3.1 and Java Connector Architecture 1.6

The following Java application servers are supported using the following JDKs:

Application Servers	JDK (vendor)	Java EE
JBoss 5	1.5/1.6 (Oracle)	5
JBoss 6	1.6 (Oracle)	6
Oracle WebLogic 10	1.5 (Oracle)	5
Oracle WebLogic 12	1.6/1.7 (Oracle)	6
IBM WebSphere 7.0	1.5 (IBM)	5
IBM WebSphere 8.0	1.6 (IBM)	6
IBM WebSphere 8.5	1.6/1.7 (IBM)	6

### Database Access

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Before you can use Enterprise Test Server to deploy SQL applications developed with OpenESQL, DB2 ECM, or COBSQL, ensure any third-party software prerequisites are installed and the environment is set properly. Refer to the your product help, **Welcome > Product Information > Installing... > System Requirements... > Additional Software Requirements > Database Access**, for details.

### Data Manager

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 **Restriction:** Data Manager is available in Enterprise Test Server Premium only. To obtain a license for Enterprise Test Server Premium, contact Micro Focus SupportLine.

The following third-party software is required:

- IBM DB2

 **Note:** Although not explicitly required, we recommend that your Windows machine have a direct connection to the DB2 database through DB2 Connect.

- When using Gateway DB2 Connect Enterprise Edition to directly connect, you must also use IBM DB2 Connect Personal Edition version 6.1 or later
- If not using Gateway DB2 Connect Enterprise Edition, use either IBM DB2 Client Application Enabler for Windows version 6.1 or later, or IBM DB2 Connect Personal Edition version 6.1 or later
- Borland Database Engine

 **Important:** Install this software after installing Enterprise Test Server.

### Micro Focus Rumba

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- On Windows 8, in order to install Micro Focus Rumba you must have the Microsoft .NET Framework 3.5 Service Pack 1 installed.

## Installing Enterprise Test Server for Windows

## Downloading the Product

1. Use the download links in your Electronic Product Delivery email.

For more information follow the links for the installation instructions and the End User License Agreement.

## Product Co-Existence

- Enterprise Developer is available in different IDE variants, each one of which is targeted by one specific variant of the development product:
  - Enterprise Server - the deployment environment for COBOL applications created with Enterprise Developer for Visual Studio 2010 or Enterprise Developer for Eclipse
  - Enterprise Server 2012 - the deployment environment for COBOL applications created with Enterprise Developer for Visual Studio 2012
- Enterprise Test Server and Enterprise Test Server 2012 cannot coexist on the same machine.
- Enterprise Server and Enterprise Test Server cannot coexist on the same machine.

## Installation Restrictions and Requirements

Before starting the installation, you should consider the following:

- If you are installing this as an upgrade, make sure that none of the product files are in use when you start the installation.
- You need to be logged in with a user-ID that has write access to the registry structure under HKEY\_LOCAL\_MACHINE, HKEY\_CLASSES\_ROOT, and HKEY\_CURRENT\_USER so the installation software can set the environment appropriately. You also need to be logged on with Administrator privileges.
- Before installing this product, make sure that any existing Micro Focus Directory Server (MFDS) or CCITCP2 Windows service (on Windows) from an existing product is stopped and uninstalled. On Windows, do this as follows:

1. Stop the MFDS and CCITCP2, using either the Windows Service Management Console GUI (`services.msc`) or from a command line prompt by typing:

```
net stop mf_ccitcp2
```

Only one instance of the MFDS or CCITCP2 service can run on a Windows machine.

2. Uninstall the MFDS or CCITCP2 service.

For MFDS, from a command line prompt enter: `mfds -u`

For CCITCP2: `ccitcp2 -u`

To run an earlier version of MFDS as a service after you have installed a later version:

1. Stop and uninstall the MFDS service, as described above.
2. Reinstall the earlier version, as follows:
  - a. Open an Enterprise Test Server command prompt.
  - b. Install the service. Enter the following command: `mfds -i`
  - c. Start the service. Enter the following command: `net start mf_ccitcp2`



**Note:** The two versions use different paths for environment and registry values, so the list of configured enterprise servers might be different depending on which version has been started, since, by default, different MFDS data repositories are used.

MFDS 5.1 and later are able to import or use Enterprise Server configuration data generated by earlier versions of MFDS, but 5.0 or earlier versions of MFDS might not be able to read data generated by later versions.

It is possible to run MFDS from a command prompt ("mfds") rather than as a service, but by default the "mfcobol" port is used (86) and this can only be used by one process at a time

- To use Data Manager, you must obtain an Enterprise Test Server Premium license. Once you have procured a Premium license, Micro Focus provides an electronic product download (EPD) that enables you to install the Data Manager for z/OS component, which is a separate installation from Enterprise Test Server. See *Installing Data Manager* in your product help for details.

## Installing as an Upgrade

This release will update an existing installation of Enterprise Test Server 2.2.



### Important:

- Before installing this release as an upgrade to an existing installation of the previous version 2.2 of the product, you must uninstall any HotFixes of 2.2. This is to avoid some problems that might result in files not being installed.
- Before installing this release as an upgrade, ensure you create a back-up of your Enterprise Server configuration. To do this, on the Enterprise Server Administration home page, click Export and then select **Export Enterprise Server configuration and Security Manager definitions**. This creates a backup folder in the `c:\programdata\micro focus\Enterprise Developer\MFDS`. You can restore the Enterprise Server configuration after installing this release - click Import on the Enterprise Server Administration home page.

Before installing, check *Installation Restrictions and Requirements*.

## Installing



**Note:** See *Installing as an Upgrade* first for important information when upgrading an existing installation of Enterprise Test Server.

These are the steps to install this product:

1. Run the `ets2010_222.exe` file and follow the wizard instructions to install the prerequisite software and the product.

The setup file will also install any missing prerequisite software as listed in the topic *Software Requirements*.



**Note:** The respective installation file for Enterprise Test Server 2012 is `ets2012_release.exe`.



### Note:

- If you are installing onto a machine that has an existing Micro Focus product that uses an older Sentinel RMS License Manager, you might be prompted to remove it and install the Micro Focus License Administration. By doing this you maintain the existing Sentinel RMS license files while adding the Micro Focus License Administration. If you are unsure about existing licenses on your computer or removing the Sentinel RMS License Manager, consult your System Administrator. If you want to proceed, remove Sentinel RMS License Manager by using **Program and Features** (Windows Vista or later), and rerun the installation file.
- Trial licenses cannot be used with remote desktop services. If you want to use your product in this way, please contact Micro Focus SupportLine to obtain a relevant license.
- We recommend that you install any updates for the .NET Framework that are available at the [Microsoft Download](#) site.
- If you install JDK you might be prompted to install the latest update. The latest update is not required for use with Enterprise Test Server but you can install it if you wish.

## Enterprise Test Server Installation Options

To install Enterprise Test Server you run `ets2010_222.exe` which contains a number of product `.msi` files (Windows Installer packages). When run, `ets2010_222.exe` performs some initial system checks then sequentially installs the `.msi` files.

 **Note:** This document only uses the filename of the executable for the product variant you have installed - `ets2010_release.exe`. For Enterprise Server 2012, the filename is `ets2012_release.exe`.

`ets2010_222.exe` can take a number of parameters, enabling you to specify a number of different types of installation:

- Standard Installation

**Format:**

`ets2010_222.exe`

**Summary:**

Full installation including License Manager and Enterprise Test Server. During installation you can specify options including the location to which the components are installed.

- Non-interactive Installation

**Format:**

`ets2010_222.exe /passive`

**Summary:**

Full installation, but the components are installed non-interactively using default options and directories.

- Silent Installation

**Format:**

`ets2010_222.exe /q`

**Summary:**

Full installation, but the components are installed non-interactively with no user interface, using default options and directories.

- Modified Silent Installation

**Format:**

`ets2010_222.exe /q InstallFolder=d:\cobolrts`

**Summary:**

Full installation, but the components are installed non-interactively with no user interface, and Enterprise Test Server is installed to `d:\cobolrts`.

To see what parameters you can use, execute the following from the command line:

`ets2010_222.exe /?.`

 **Note:**

- Log files that are created during installation are saved in the folder specified by the TEMP environment variable. To change the location or name of the files, use the `/log` parameter on your setup command line and specify the path and file name, for example: `filename /log d:\temp\log.txt`. This creates a log file, named `log.txt`, in the `d:\temp` directory.

## After Installing

To open the help on versions of Windows 7 and earlier, select **Start > All Programs > Micro Focus Enterprise Test Server > Documentation** from the Windows Taskbar.

On Windows 8, right-click at the bottom of the Start screen, and click **All apps** to display all available links for this product. In the Enterprise Test Server section, click **Documentation**.

This starts the documentation for Enterprise Test Server in the online Micro Focus Infocenter. From the left hand pane, select **Enterprise > Micro Focus Enterprise Test Server**.



**Note:** For applications created with earlier Micro Focus products or earlier versions of Enterprise Developer, note the following:

<b>Database Access</b>	Managed applications using SQL(DBMAN=ODBC) that were compiled in Enterprise Developer 2.1 Update 1 must be recompiled in Enterprise Developer 2.2 Update 2.
<b>Existing Applications</b>	Application executables that were compiled using earlier Micro Focus products must be recompiled from the sources using Enterprise Developer. For more information, read the section <i>Upgrading to Enterprise Developer for Visual Studio 2010</i> in the product Help.

**Open PL/I Compiler**



**Important:** If you are installing this release as an upgrade to Enterprise Developer 2.2 Update 1, after the upgrade you must rebuild any applications that are compiled using the `-zp1` option.

The behavior of the `-zp1` option has been reverted to that of versions of Enterprise Developer earlier than 2.2 Update 1, with an additional correction relating to Character Varying data items.

The behavior has been restored to that in Enterprise Developer versions earlier than 2.2 where, when compiling with `-zp1`, all parameters are treated as unaligned. (In Enterprise Developer 2.2 Update 1, the behavior when compiling with `-zp1` was to not treat parameters as if unaligned).

When using the `-zp1` compiler option, all Character Varying data items are now treated as if unaligned. In previous versions of Open PL/I, for Character Varying data items, the `-zp1` unaligned requirement was applied only to structure members and parameters.

To illustrate the change, consider the following example:

```
zptest: proc options(main);

    dcl 1 st1,
        2 c char,
        2 x(4) char(7) var init ('a', 'xx', 'yyy', 'zzzz');

    dcl y(4) char(7) var init ('a', 'xx', 'yyy', 'zzzz');

    dcl sub entry ((4) char(7) var);

    call sub (x);

    call sub (y);

end;

sub: proc (z);

    dcl z(4) char(7) var;

    dcl i fixed bin(31);

    do i = 1 to hbound(z);
        z(i) = 'x';
    end;

end;
```

```
end;
end;
```

Where:

- For *x* and *z*, each `char (7) var` item is 7 plus 2 bytes which equals 9 and then multiplied by 4 equals 36.
- If *y* were aligned on half-word by default, each array element is half-word aligned and each equals 10 bytes (9 + 1 pad byte), and the total size equals 40 bytes.
- At `call sub (x)`, the calling argument and parameter are matched.
- At the `call sub (y)`, the *y* element size (10 bytes) is mismatched against the parameter *z* element size (9 bytes) due to `-zp1`. This is incorrect and causes unexpected program behavior.

Due to this correction of treating all Char Varying data items as if unaligned when using `-zp1`, the size of CHAR VARYING arrays now differs from previous versions of Open-PL/I. For example:

```
dcl X(4) char(7) var;

Put skip list (size(X)) /* size is 36 bytes vs. 40 bytes in
previous versions of Open-PL1 */
```

## Repairing

If any product files, registry settings or shortcuts are accidentally removed at any point, you can perform a repair on the installation to replace them.

To repair your installation on versions of Windows Vista or later:

1. From the **Control Panel**, click **Uninstall a program** under **Programs**.
2. Right-click your Micro Focus product and select **Repair**.

## Installing Mainframe Access Server

### Introduction

The installation process for Mainframe Access Server (MFA) uses a single FTP operation to transfer all of the mainframe software into a partitioned data set that you pre-allocate. When this transfer is complete, the remaining installation activities are all done on the mainframe. You customize and submit the pre-built FRESTORE job to restore the product data sets from the uploaded files and then continue with customization steps to create an operational Mainframe Access Server.

### Requirements

- IBM TCP/IP 4.0, or Interlink TCP/IP 3.1 or higher
- Two APPLIDs, two TCP/IP ports
- Availability of APF security authorization support personnel
- Access to a network share with acceptable space for source and data, as well as the ability to access the IP address and ports used to access MFA
- The following installation-specific variable information:

Variable	Description
<i>drive</i>	
<i>userid</i>	TSO user-ID for FTP to your mainframe

Variable	Description
<i>pswd</i>	TSO password for the FTP user-ID
<i>your.mainframe.name</i>	TCP/IP host name or IP address of your mainframe
<i>prodhlg</i>	A NEW high level qualifier that will be assigned for all Host Connectivity data sets when the new Mainframe Access product is installed. These are NOT existing product data sets, but rather brand new files that you will be creating for this base version.



**Important:** The installation of a new version of MFA creates new product run-time data sets before the upgrade is applied. Any existing Host Connectivity 3.01 libraries remain intact, and can be used for fallback. If you prefer to retain your former production library names and re-use your existing *prodhlg*, rename your old libraries beforehand.

Make a note of the maintenance level of your current Mainframe Access Server. Messages MFM0001I and MFM0014I on the syslog and XDBOUT sysout data set show the maintenance level at startup. You may need to know what level you are upgrading from when you complete post-installation customizations for this upgrade.

### Install Mainframe Access Server

In the instructions that follow, the information that you must provide is shown as one of the variable names from the table of information in the previous section. For example, if your high-level qualifier (*prodhlg*) value is MY.MFA, then substitute MY.MFA for *prodhlg*.

Follow these steps to load Mainframe Access Server:

1. Download the installation file from the link in your Electronic Product Delivery email and extract its contents to a directory on the PC.
2. On the mainframe, allocate a new partitioned data set named *prodhlg*.UPLOAD to receive the uploaded files. Use the following data set characteristics for this upload library:

```
DSORG=PO          <=== PDS (partitioned data set)
RECFM=FB          <=== record format fixed and blocked
LRECL=80          <=== 80 character record size
BLKSIZE=3120      <=== 3120 character block size
SPACE=(3120,(3500,500,50)) <=== allocate blocks (BLKS) size 3120
                                     3500 primary blocks
                                     500 secondary blocks
                                     50 directory blocks
```

3. On the PC, issue the following FTP commands. The actual text of the FTP prompts and responses that you see may differ slightly from those shown in this example.

**a. Start FTP:**

```
C:\>ftp your.mainframe.name
Connected to your.mainframe.name.
220-FTPD1 IBM FTP CS/390 VxRy at YOUR.MAINFRAME.NAME, hh:mm:ss
220 Connection will close if idle for more than 5 minutes.
User (your.mainframe.name:(none)): userid
331 Send password please.
Password: pswd
230 userid is logged on. Working directory is "userid."
```

**b. Change the working directory on the mainframe to be the upload library that you allocated:**

```
ftp> cd 'prodhlg.UPLOAD'
250 The working directory "hlg.UPLOAD" is a partitioned data set.
```

**c. Set file transfer type to binary:**

```
ftp> binary
200 Representation type is Image
```

- d. Set FTP prompting off to transfer all files without interruption:

```
ftp> prompt
Interactive mode Off.
```

- e. Transfer all files from the extracted \Upload directory to members in the *prodhlq.UPLOAD* library:

```
ftp> mputdrive:\upload\f*
200 Port request OK.
125 Storing data set prodhlq.UPLOAD(Fxxxxxxx)
250 Transfer completed successfully.
ftp: xxxx bytes sent in x.xx seconds (xxx.xx Kbytes/sec)
.
.
.
```

- f. When `mput` has transferred all files the `ftp>` prompt appears. End the FTP connection:

```
ftp> quit
221 Quit command received. Goodbye.
```

- g. On the mainframe, verify that all files transferred successfully and that for each `Fxxxxxx` file in the \Upload directory there is a corresponding member in the *prodhlq.UPLOAD* data set. There should be 10 members, F1 through to F9 and FRESTORE.

4. On the mainframe, edit member FRESTORE in the upload library, *prodhlq.UPLOAD*. Follow the instructions in that member to customize the JCL and then submit that job to restore the product libraries from the uploaded files and populate your new product runtime libraries.

5. Start Mainframe Access Server.

### After installation

Since the program libraries can change between versions, it is necessary to either create new procedures, or back up the old procedures, and at least modify the `DSNQUAL=prodhlq` within your MFA sample started task procedures as provided by Micro Focus. The *prodhlq.LOADLIB* and *prodhlq.SASC.LINKLIB* must both be authorized.

Verify successful maintenance application by checking the Mainframe Access Server startup message:

```
MFM0001I: Mainframe Access V4.00 (BASE ) is active
```

The "(BASE )" indicates the product maintenance level. Also check for "V4.00" in the Mainframe Access Data Connect server startup message:

```
MFA303I MFA/DATACONNECT V4.00 - BASE COPYRIGHT (C) 1987-2012 MICRO FOCUS...
```

When you are satisfied with the new version installation you may delete the `UPLOAD` data set from your system.

### New parameters and members in the CNTL samples data set

The following updated members are found in the `CNTL` data set.

MFA	sample MFA started task
MFAS	*new* sample MFAS started task for Data Connect
MFAAS	sample MFAAS application server started task
MFAVTAM	sample MFA VTAM definitions
PARMS	sample PARMS for MFA started task
PARMSAS	sample PARMSAS for MFAAS started task
SERVERS	sample SERVERS configuration for MFA
UPQUICK	configuration notes

If you are migrating from Host Connectivity 3.01 WebSync 10 or earlier, you may want to retain your existing `CNTL` members from your current version as an installation test. You can simply copy the existing

MFA started task JCL and change the STEPLIB to reference the new product libraries. You will however need to modify the MFAS started task JCL since the module names for Data Connect have been changed to allow co-residence within the same authorized library as MFA.

Review the Change Log in each of the new members. Read the documentation for any new parameters in the Readme and in the updated Mainframe Access Administrator's Guide. Add these new parameters and other changes to your working copies. If necessary, customize the new parameters for your installation.

Once you are satisfied with the operation of Mainframe Access, you can consolidate the configuration settings into the new high-level qualified CNTL members.

## Uninstalling

To uninstall the product, you cannot simply delete its files from your hard disk. To uninstall the product:

1. Log in with the same user-ID as you used when you installed the product.
2. Click **Uninstall a program** under **Programs** in **Control Panel**.
3. Select the product and click **Remove** or **Uninstall** as appropriate.

When you uninstall, the only files deleted are those that the installation software installed. If the product directory has not been removed, delete any unwanted files and subdirectories within it using Windows Explorer.



**Important:** The installer creates separate installations for Micro Focus Enterprise Test Server and Micro Focus License Administration. Uninstalling only Enterprise Test Server does not automatically uninstall the Micro Focus License Administration or any of the prerequisite software.

To completely remove the product you must uninstall the Micro Focus License Administration as well.

You can optionally remove the prerequisite software. For instructions, check the documentation of the respective software vendor.

To silently uninstall the product, you need the setup file and you need to execute the following at the command line:

```
start /wait install-file.exe /quiet /uninstall
```

# Licensing Information



## Note:

- If you have purchased licenses for a previous release of this product, those licenses will also enable you to use this release.
- Be aware that the person who purchased this product has had to sign a license which states that you may use this product for testing only, and not for development work. If you are uncertain as to whether you will need to do development work, we recommend you speak to the person who purchased the product to see if you need a different license.
- Your entitlement for using this product is governed by the Micro Focus End User License Agreement and by your product order. If you are unsure of what your license entitlement is or if you wish to purchase additional licenses, contact your sales representative or [Micro Focus SupportLine](#).

## To buy and activate a full unlimited license

To buy a license for Enterprise Developer, contact your sales representative or Micro Focus SupportLine.

For instructions on using the Micro Focus Licensing Administration Tool, see *Licensing* in the Enterprise Developer help.

## To start Micro Focus License Administration

From the Windows Taskbar click **Start > All Programs > Micro Focus License Manager > License Administration**.



**Note:** On Windows 8 and Windows Server 2012, you use the Start screen to invoke programs.

## Installing licenses

### If you have a license file

1. Start Micro Focus License Administration.
2. Click the **Install** tab.
3. Do one of the following:
  - Click **Browse** next to the **License file** field and select the license file (which has an extension of `.mflic`).
  - Drag and drop the license file from Windows Explorer to the **License file** field.
  - Open the license file in a text editor, such as Notepad, then copy and paste the contents of the file into the box below the **License file** field.
4. Click **Install Licenses**.

# If you have an authorization code

## Authorizing your product when you have an Internet connection

 **Note:** This topic only applies if you have an authorization code.

The following procedure describes how to authorize your product using a local or network license server. The license server is set up automatically when you first install the product.

1. Start Micro Focus License Administration.
2. Click the **Install** tab.
3. Type the authorization code in the **Enter authorization code** field.
4. Click **Authorize**.

If you change the name of the machine running your license server after it has granted licenses, the licenses stop working.

## Authorizing your product when you don't have an Internet connection

 **Note:** This topic only applies if you have an authorization code.

This method of authorization is required if your machine does not have an Internet connection or if normal (automatic) authorization fails.

1. Start Micro Focus License Administration.
2. Click **Manual Authorization** on the Install page.
3. Make a note of the contents of the **Machine ID** field. You will need this later.
4. Do one of the following:
  - If your machine has an Internet connection, click the SupportLine Web link in the Manual Authorization Information window.
  - If your machine does not have an Internet connection, make a note of the Web address and type it into a Web browser on a machine that has an Internet connection.

The Micro Focus SupportLine Manual product authorization Web page is displayed.

5. Type the authorization code in the **Authorization Code** field. The authorization code is a 16-character alphanumeric string supplied when you purchased your product.
6. Type the Machine ID in the **Machine ID** field.
7. Type your email address in the **Email Address** field.
8. Click **Generate**.
9. Copy the generated license string (or copy it from the email) and paste it into the box under the **License file** field on the Install page.
10. Click **Install Licenses**.

## To obtain more licenses

If you are unsure of what your license entitlement is or if you wish to purchase additional licenses for Enterprise Developer, contact your sales representative or Micro Focus SupportLine.

# New Features in Enterprise Test Server 2.2 Update 2

This release provides enhancements in the following areas:

## Character Set Enhancements

The following character sets, available using the MFCODESET environment variable, have been enhanced or added in this release:

- Thai Extended (0066) - new
- Korean (0082)
- Simplified Chinese (0086)
- Traditional Chinese (0886)

There are also a number of double-byte character sets that are now capable of mixed single-byte and double-byte character conversion; see the definition of MFCODESET in *Environment Variables in Alphabetical Order* for more information.

## Data Manager

This version of Data Manager is compatible with DB2 11 for z/OS.

## Database Access

The following new features are available in database access support:

### COBSQL

**HCO for DB2 LUW** This release introduces GEN-HV-FROM-GROUP - a new DB2 ECM compiler directive option, that generates host variables for all elementary data items when a multiple-level group variable is used in a FETCH or singleton SELECT DB2 statement.

**HCO for SQL Server (HCOSS)** This release provides the following new HCOSS features:

- DATE/TIME formatting - the OpenESQL Configuration Utility now supports DATE/TIME formatting for HCOSS batch utilities.
- Multi-row INSERT - supports a multi-row INSERT statement.

**OpenESQL** This version provides the following new OpenESQL features:

- Support for SQL Server 2014.
- New SQL Compiler directive options:
  - DETECTDATE=SERVER - resolves host variables alignment with column data types in an SQL table.
  - GEN-HV-FROM-GROUP - generates host variables for all elementary data items when a multiple-level group variable is used in a FETCH or singleton SELECT SQL statement.
- Sample applications - the following native COBOL SQL sample applications are new with this version:
  - Get Diagnostics - demonstrates how to use GET DIAGNOSTICS EXEC SQL calls to get diagnostic information from various DBMSs.

- LOB Data Types - Demonstrates how to INSERT and SELECT LOB data in a native application using various DBMSs.

#### SQL Option for DB2

Support for the following has been added in this version:

- DSNUTILB LOAD LOG=NO option
- RID scalar function
- XML data type via XDB Link to mainframe DB2

#### XA switch modules

The following XA switch module updates are available in this version:

- Oracle switch module:
  - Supports User Impersonation when statically registered.
  - Enables you to specify which XA resource definitions use User Impersonation.
  - Now compiled with one source file, rather than two.
- SQL Server switch module:
  - Enables you to specify which XA resource definitions use User Impersonation.
  - Now compiled with one source file, rather than two.

### External Call Interface (ECI)

Enhancements to the ECI include:

- The ECI for Java clients is no longer restricted to the 32K Commarea. You can now transfer virtually unlimited containers of any size in a channel to a CICS server program. See *ECI Java Interface* for more information.
- Java support for IBM's implementation of ECI, which, in turn, uses the Micro Focus implementation.
- A ECI RA for WebSphere; however, in this release, no IMTK tooling is provided for servlets or JSP.

### External Security Facility (ESF)

The Enterprise Server External Security Facility (ESF) now supports caching the results of some security queries. This can improve the performance of enterprise server instances and of the MFDS when they are configured to use external security.

To enable caching, you need to set non-zero values for the **Cache limit** (maximum size of the cache) and **Cache TTL** (Time To Live, or how long before a cached result expires) settings on the **MFDS Security** tab, the **Default ES Security** tab, or on the **Security** tab for an individual enterprise server. (Currently, the cache settings for Security Managers have no effect; you need to set cache parameters on one of the three Security pages mentioned earlier.)

For more information, see <http://supportline.microfocus.com/examplesandutilities/doxygen/caching.html>.

### IMS Connect

This release now supports Java IMS Connect messages except when also using the IBM-supplied HWSJAVA0 I/O exit.

### Tunables

This release includes the following new tunable:

- `reduce_java_signals` - specifies the options that are passed to a JVM when mixing Java and COBOL.

# Known Issues

Refer to the *Known Errors and Restrictions* topic in the *Product Information* section of your product Help.

In addition, note the following:

- |                          |   |
|--------------------------|---|
| <b>CICS</b>              | <ul style="list-style-type: none"><li>• An EXEC CICS DELAY statement may sometimes produce a difference of one second.</li></ul>  |
| <b>Enterprise Server</b> | <ul style="list-style-type: none"><li>• The Historical Statistics Facility may generate incorrect records for SSTM-enabled enterprise servers.</li></ul>  |
| <b>ICETOOL Emulation</b> | ICETOOL emulation for managed code is not available in this release.  |
| <b>Installation</b>      | <ul style="list-style-type: none"><li>• Before installing this release as an upgrade to an existing installation of the previous version 2.2 of the product, you must uninstall any HotFixes of 2.2. This is to avoid some problems that might result in files not being installed. This is required only on Windows.</li><li>• Before installing this release as an upgrade, ensure you create a back-up of your Enterprise Server configuration. To do this, on the Enterprise Server Administration home page, click Export and then select <b>Export Enterprise Server configuration and Security Manager definitions</b>. This creates a backup folder in the <code>c:\programdata\micro focus\Enterprise Developer\MFDS</code>. You can restore the Enterprise Server configuration after installing this release - click Import on the Enterprise Server Administration home page.</li></ul> |
| <b>Micro Focus Rumba</b> | On versions of Windows Vista and later, Enterprise Server listens only on the IPv4 loopback address (127.0.0.1). As a result, an attempt to connect to localhost with a TN3270 emulator such as Micro Focus Rumba may fail. To work around this issue, in your emulator's configuration use 127.0.0.1 in preference to localhost or your host machine's name.   |
| <b>Resource Adapters</b> | Trying to deploy the local resource adaptor <code>mfcobol-localtx.rar</code> to WebLogic may fail with a <code>ClassCastException</code> . To work around this issue, you need to deploy <code>mfcobol-xa.rar</code> first, then need to undeploy this file and deploy the local one, <code>mfcobol-localtx.rar</code> . If there are issues deploying using the WebLogic GUI, you can use the command line. If there are issues with this as well, try reducing the length of the command (for example, by moving the file to a location with a shorter path).   |

# Significant Changes in Behavior or Usage

This section describes significant changes in behavior or usage. These changes could potentially affect the behavior of existing applications or impact the way the tools are used.

The numbers that follow each issue are the Support Incident Numbers followed by the Reported Problem Incident (RPI) number (in parentheses).

- [Compiler](#)
- [Compiler Front-end](#)
- [Documentation](#)
- [Enterprise Server](#)
- [File Handling - External File Handler](#)
- [J2EE Connector](#)
- [MTO: CICS Communications](#)
- [MTO: IMS DB](#)
- [MTO: IMS MFS](#)
- [MTO: JCL MVS](#)
- [MTO: JCL Utils](#)

## Compiler

[Back to the list](#)

- When using the HOSTRW directive with the mainframe dialect, Report Writer will now produce the full range of ASA control characters and will emulate mainframe print files.

2697615 (1094527)

## Compiler Front-end

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- Fixed Binary (p<=7) is now an 8-bit, signed, 2's complement binary integer by default.

## Documentation

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- The default setting for the MFALLOC\_PCFILE environment variable has changed; the default is now set to Y, which means that when cataloguing a file that has a DCB attribute of DSORG=PS, a physical file is created for it if one does not exist. Previously, the default was set to N, which meant that a file was not created.

2697571 (1094370)

## Enterprise Server

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Starting with this release, IMSCONFIG.DAT is no longer used for configuring enterprise servers. Instead, you need to use environment variables to control the following fields:

Field	Environment Variable
LANG=PL/I PCB address lists	ES_IMS_PLI_INDIRECT_PCBADDR=D Y N

Field	Environment Variable
	Where: <b>D</b> Dynamic (default) use indirect PCB address list when PSB language is PL/I and main program is PL/I. <b>Y</b> Always use indirect PCB address list if PSB language is PL/I. <b>N</b> Never use indirect PCB address list.
IBM Platform	ES_IMS_IBMPLATFORM=M D Where: <b>M</b> MVS (default) <b>D</b> DOSVS Required by some DOS/VS customers.
Secondary Index Sparse exit language	ES_IMS_SPARSE_EXIT_LANG=C A Where: <b>C</b> COBOL <b>A</b> Assembler <b>Not set (default)</b> Sparse exits disabled

## File Handling - External File Handler

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- The ES\_IMS\_TLOG\_FLUSH environment variable is now deprecated. To control TLOG flushing, use the following environment variable: ES\_IMS\_DB\_TLOG\_WRITETHRU=0|1

**0** Forces the flushing of TLOG buffers to disk on COMMIT only (default)

**1** Forces the flushing of TLOG buffers to disk on all database I/O

To control database flushing, use the following environment variable: ES\_IMS\_DB\_COMMIT\_FLUSH=0|1

**0** Forces the flushing of database buffers to disk on CLOSE only (default)

**1** Forces the flushing of database buffers to disk on COMMIT only

Depending on the number of database updates, the frequency of COMMITs, and other concurrent computer activities, use of these environment variables could cause significant performance degradation.

2784949 (1095190)

- The use of the environment setting MFJ\_INPUTDS\_ERROR=N has been extended so that an input file for a JCL step is now considered as optional and you no longer receive an error when the file is missing.

2784622 (1095971)

## **J2EE Connector**

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- The listSystem.properties file in package com.ibm.ctg.client was missing documentation for some sections.

(606556)

## **MTO: CICS Communications**

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- In CRTE mode, the transactions are now run using the correct userid if the user has signed on after running CRTE.

2663890 (1091979)

## **MTO: IMS DB**

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- The NODCX mfims dbdgen directive has been added to enable you to compile DBD source without executing data capture exit routines contained in the DBD source. Previously, data capture exit routines contained in the DBD source but that were not found during compilation were ignored. The new default behavior is to process all data capture exit routines unless NODCX has been specified.

2579600 (1084675)

## **MTO: IMS MFS**

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- All existing IMS Global Physical Terminal edit routines (DFSGPIX0) in use must be recompiled with charset EBCDIC instead of charset ASCII.

(606142)

## **MTO: JCL MVS**

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- Following the detection of an unrecoverable file status error on the casspool file, a message is displayed on the console and an ACCEPT statement is issued. This stops processing, allowing you to fix the underlying file problem, before continuing the job.

2651654 (1090287)

## **MTO: JCL Utils**

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- You can now activate support for the VSAM Shareoption for batch jobs and for CICS files that use a catalog entry. For more details, see your product help.

2660651 (1091290)

# Resolved Issues

The numbers that follow each issue are the Support Incident Numbers followed by the Reported Problem Incident (RPI) number (in parentheses).

- *.NET Compiler*
- *.NET ESQL Support*
- *.NET Run-Time System*
- *Adis*
- *Assembler Compiler - HLL Macro Assembler*
- *CAS (COBOL App Server) General*
- *CAS Admin Console*
- *CAS Security*
- *CAS XA Switch modules*
- *CCI TCP/IP*
- *Compiler*
- *Client: Data*
- *Client: Data Subset Extraction*
- *Codeset Support*
- *Documentation*
- *ES Cluster*
- *File Handling: External File Handler*
- *File Handling - Sort / JCL Sort*
- *Host: Data*
- *Host: Data Masking*
- *MF Communications Server*
- *MF Directory Server*
- *MFA Server*
- *MFA SyncMon*
- *MFBSI*
- *MFIO*
- *MTO: CICS ECM/Preprocessor/Translator*
- *MTO: CICS Emulation*
- *MTO: CICS ESMAC*
- *MTO: CICS Supplied Transactions*
- *MTO: IMS DB*
- *MTO: IMS MFS*
- *MTO: IMS Other*
- *MTO: IMS TM*
- *MTO: JCL ESMAC*
- *MTO: JCL MVS*
- *MTO: JCL System Catalog*
- *MTO: JCL TSO*
- *MTO: JCL Utils*
- *MTO: JCL Utils - IDCAMS*
- *NCG*
- *OO Run-Time System (32-bit)*

- [Run-Time System](#)
- [Setup Issues](#)
- [SQL: Cobsql](#)
- [SQL: DB2 ECM](#)
- [SQL: OpenESQL](#)
- [Unassigned](#)
- [Web Service Client](#)
- [XDB Server](#)
- [XDB: Problems not classed above](#)
- [XML syntax support runtime](#)

## **.NET Compiler**

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- Comparisons between PIC N or PIC G items and ALL hex-literals are now working correctly.  
2795393 (1096266)
- The CURRENT-DATE function, using reference modification with an implied length (e.g. FUNCTION CURRENT-DATE(3:)), now behaves as expected when compiled to managed COBOL.  
2788009 (1095691)
- In Managed COBOL only, an unreferenced elementary field of an "IS EXTERNAL" data item would not be initialized by the INITIALIZE verb, even though the containing group item was referenced. This is now working correctly.  
2787385 (1095405)
- The performance of the .NET Compiler has been enhanced. Previously, programs that included multiple pointers and comp-5 items with value clauses could take a long time to load. The use of the XML preprocessor could lead to this condition, since it generates data of this type.  
2784731 (1095278)
- Correct behavior is now being displayed when the INITIALIZE statement is used on DBCS data, where the initializing literal is a single-byte alphanumeric.  
2784714 (1095079)
- Exponentiation with a literal exponent of 2 (or multiple of 2) on a signed field is now working as expected. In previous versions of the product, such an operation could lead to invalid code.  
2784503 (1095063)
- Compatibility of SPZERO with native COBOL code has been improved in the following two cases: 1) If a-9 = space (where a-9 is defined as pic 9(n) DISPLAY) With SPZERO on, this comparison will now always yield a false result. 2) Move a-x to a-9 (where a-x is pic x(n) and a-9 is pic 9(n)) In the case where a-x contains spaces, this move will now result in a-9 containing zeroes.  
2676477 (1093768)

## **.NET ESQL Support**

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- When using OpenESQL for ADO.NET, the first execution of a statement for SQL Server no longer locks the varbinary host variable sizes.  
2791617 (1095920)
- The OpenESQL pre-compiler sometimes generated incorrect code if a PIC X(n) VARYING host variable was used in a COBOL JVM project.  
2787380 (1095934)
- The managed SQL run-time system now correctly handles variable string lengths for both 49-level COMP fields and 49-level COMP-5 fields.

2782088 (1094793)

- The OpenESQL native ODBC wrapper used in managed applications would sometimes incorrectly set index past the end of table before moving information to the table which resulted in a COBOL subscript error.

2780447 (1094665)

### **.NET Run-Time System**

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- In managed code, multiple processes using the same input file in a SORT statement will no longer get intermittent open failures.

2790155 (1095759)

### **Adis**

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- When using X"AF" function 81, screen attributes are now inherited correctly.

2782580 (1094878)

- Using an ACCEPT statement followed by a display of an OUTPUT RIGHT item and an ERASE EOL item no longer causes a corruption of a screen section.

2695444 (1093924)

### **Assembler Compiler: HLL Macro Assembler**

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- The Assembler macro IDENTIFY was generating an invalid relocatable definition when the EPLOC= operand was in a DSECT. The EPLOC= operand processing has been changed to use the load address (LA) instruction which obtains a valid address for both CSECT resident symbols and DSECT resident symbols.

### **CAS (COBOL App Server) General**

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- Using the INPUTMSG parameter for the XCTL and LINK commands is now working correctly.

2790518 (1095805)

- On user syncpoint, a 500-error no longer returns to the client if the application did not issue a WEB SEND.

2780958 (1094671)

- When linking to a program with a channel, the current channel was not always honoured.

2779977 (1094556)

- Enterprise Server is no longer sending a FREEKB to the terminal at the end of a task when there is more work pending for the terminal.

2691707 (1093544)

- You no longer receive an intermittent signal 11 in MFCS during shutdown.

### **CAS Admin Console**

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- When starting an enterprise server instance, the location of the work files may differ depending on whether the instance was started using a browser or from the command line. See the documentation for "system directory" in the topic "Server Instance Properties General".

2660616 (1090612)

## CAS Security

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- The es-ldap-update.cmd script has been updated for the Enterprise Developer product line. The script is used to install a sample set of security definitions when LDAP-based security is used with Enterprise Server.

## CAS XA Switch modules

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- An HCOSS problem where a cursor that was open for a global temporary table caused an EXEC CICS SYNCPOINT ROLLBACK to fail has been fixed.  
2779765 (1094542)
- Global temporary tables are now deleted after EXEC CICS SYNCPOINT ROLLBACK is executed.  
2698545 (1094249)
- EXEC SQL RESET CONNECTION has been updated and is used to drop Global Temporary Tables at the end of tasks.  
2693269 (1093613)
- EXEC SQL SYNCPOINT has been updated and now correctly handles ON COMMIT actions for DECLARED global temporary tables.  
2682648 (1093611)
- The XDB XA switch module has been enhanced to exploit CICS EOT processing for XDB transactions.

## CCI TCP/IP

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- CCITCP client connections could intermittently fail on some platforms due to transient errors in the TCP/IP stack. CCITCP is now more aggressive at detecting and retrying client connections under these conditions. This primarily affects COBOL Web services clients, some Enterprise Server command-line utilities, and Fileshare clients.  
2794263 (1096355)
- INT and CSO modules that use the Casfile API can now successfully connect to SSL-secured Enterprise Server listeners.  
2696022 (1094318)

## Compiler

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- Programs with a mainframe dialect that contain a paragraph declaration that is not preceded by a period and that is previously referenced now compile as expected.  
2793046 (1096112)
- Complex table VALUE syntax is now working as expected.  
2792013 (1095954)
- Compilation no longer hangs when REPLACE and COPY REPLACING is active and the source code has multiple lines ending in a comma.  
2791425 (1095905)
- READ and WRITE statements with the RM filehandler for files defined with the "RECORD VARYING FROM 0 TO ..." syntax now behave as expected.

2785986 (1095385)

- An INSPECT CONVERTING statement on a subscripted sliding item now executes as expected.

2785328 (1095244)

- Setting the LINE-COUNT(2) Compiler directive on a project no longer causes the IDE to crash during a background syntax check.

2784751 (1095114)

- Data items with DBCS characters which are defined as SQL data types are now processed correctly.

2783799 (1094976)

- The OSEXT and COPYEXT directives now work with quoted names (with or without spaces).

2780350 (604653)

- Compiling programs that use both the "WITH DEBUGGING MODE" and "IS INITIAL" clauses now produces correct object code.

2779266 (1094498)

- Programs that use an external report file now execute as expected.

2698699 (1094352)

- The performance of the syntax constructs "SET ADDRESS OF .. TO ADDRESS OF ..." when using the AMODE compiler directive has been improved.

2697051 (1094174)

- A MOVE of 'ALL <alphanumeric literal>' to a numeric display item is now correctly emulated under DIALECT(RM).

2648551 (1089534)

- The IDE now correctly indicates the location of errors in multi-program source.

2541308 (1081744)

- Using Watch/Quick Watch on a data item with subscripts, where one of the subscripts is also subscripted, now produces the correct results.

2463792 (1075281)

- A program that exceeds the system limit of 254 DETAIL groups for a report now receives an appropriate error message "COBCH1692S Too many DETAIL groups specified for report".

2458349 (1096071)

### **Client: Data**

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- A new feature, Assign an Application ID, has been added to enable you to assign one application ID to one or multiple data stores, or to assign multiple application IDs to multiple data stores.

2503098 (1078329)

### **Client: Data Subset Extraction**

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- When creating a referential integrity method, a CREATOR name longer than 10 bytes was not appropriately truncated, causing the method to be inaccessible.

2794409 (1096206)

- An error no longer occurs when deleting a method from the details grid.

### **Codeset Support**

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- The offset of input segments is now calculated correctly. In order to apply the fix, you must regenerate the MFS source.

2695463 (1093948)

## Documentation

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- The name of the ES\_IMSDB\_ROLLBACK environment variable has been changed to ES\_IMS\_ROLLBACK. Documentation now reflects this name change. Applications that use ES\_IMSDB\_ROLLBACK are still compatible in this release.

2698601 (1094260)

- The documentation for the MFBSI CTF trace option has been corrected in the online help. It now reads: mftrace.comp.mfbsi.emx#all = true

2693323 (1093631)

- The description for the MULTI-NESTED topic under DB2 Compiler Directive Options was incorrect.

2783274 (1094953)

- The BMS Painter .bmsx output file was not documented.

2782860 (1094902)

- The topic about the ILSMARTLINKAGE Compiler directive in the product help now includes information about the get\_Reference() method (JVM COBOL) and the .Reference property (.NET COBOL) that the classes and types generated with ILSMARTLINKAGE produce. If you pass such a class or type as a parameter to a program that receives it "by reference", you need to use the "by reference" object by specifying the get\_Reference() method or .Reference property, respectively. This returns an object that encapsulates the ILSMARTLINKAGE parameter so it be used with a method that is declared as "by reference". You also need to use get\_Reference() or .Reference with the RunUnit:Call() method.

2779516 (1094514)

- The setup file installs the product and any missing third party software, and will install the Java 7 Update 27. This information is now included in the *Software Requirements* section of the product help.

2785427 (1095199)

- The setup file installs the product and any missing third party software, and will install the .NET Framework v4.0. This information is now included in the *Software Requirements* section of the product help.

2672774 (1095057)

- The Release Notes for Enterprise Developer now state correctly that the supported versions of Visual Studio are 2010 and 2012.

2785664 (1095227)

## Enterprise Analyzer Integration

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- An issue with the DISPLAY ... LINE statement being unable to process expressions has been fixed.

## ES Cluster

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- In a clustered configuration of Enterprise Server, on some platforms, MFCS could crash during startup of an enterprise server instance due to attempting to process communications with the cluster manager before initialization was complete.

## File Handling - External File Handler

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- An automatic close of a file opened in a container no longer causes a rollback.  
2790362 (1095956)
- Previously, a file could be left with its integrity bit set to transactional if a process included a mix of transactional and non-transactional opens and the last close of the file was a non-transactional one.  
2785682 (1095657)
- The transaction log now correctly shows the timestamp for the prepare, commit and rollback operations.  
2784948 (1095162)
- If a VSAM file is opened for an OUTPUT in a RANDOM/DYNAMIC access mode, the file virgin state is changed to a non-virgin even if no records are written to it. If the file is opened for an OUTPUT in a SEQUENTIAL access mode, its virgin state is retained.  
2781975 (1094779)
- The MFALLOC\_PCFILE environment variable now works as expected. Previously, it would be bypassed when the ES\_ALLOC\_OVERRIDE environment variable was also specified.  
2692290 (1093977)
- During Open OUTPUT of a VSE VSAM reusable file, with DISP=OLD, the file is no longer reset; the file is opened in EXTEND mode.  
2638640 (1089073)

## File Handling - Sort / JCL Sort

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- You no longer receive a SORTOUT RECFM 'VB' invalid message in situations where all the files are 'FB'.  
2791516 (1096010)
- Edited PD fields no longer corrupt when MFJSSTRICTSORT is set.  
2787824 (1095518)
- The FTOV parameter now works as expected when sorting data sets that specify RECFM=VBS.  
2785814 (1095223)
- MFJTOOL now correctly displays ZD and PD fields.  
2781909 (1094865)

## Host: Data

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- The relationship between two combined data elements was sometimes incorrect when using a referential integrity file for class generation.  
2693584 (1093841)
- When a wrong association existed between copy and data store, JCL BURLFIL completed with RC=0 when the return code should have been RC=8.  
2661052 (1090753)
- A new error message, WRC4030, has been added to clarify recursive relationships found between parent and child data elements.  
2611533 (1087814)

## Host: Data Masking

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- Data Manager now supports BMC SYSPUNCH nullable fields. In addition, a new error message, WRC4028, has been added to report when the BMC SYSPUNCH parsing process encounters unexpected syntax.

2184246 (1061888)

## MF Communications Server

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- - You no longer receive memory leaks in the MFCS process for CICS Web Interface servers.
  - The MFCS process may fall behind in task processing if the Enterprise Server region handles a heavy load of quick transactions arriving from multiple clients. In this case, you may experience a gradual decrease in throughput. To check whether this problem exists, you can also periodically check the "Statistics" page for the Communications Process in Enterprise Server Administration, which will display a growing list of tasks waiting to run. To work around this issue, you need to use the new configuration option, "enable mutex sweep", described in the product help.

2789874 (1095856)

- Certain Enterprise Server administration actions such as notifying a running enterprise server of a security update could cause MFCS to hang.

2784219 (1095045)

- Requests using the CICS Transaction Gateway or the CICS External Call Interface protocol could hang and time out when running against Enterprise Server 2.2 and 2.2 Update 1, due to an issue that occurred when multiple CTG requests arrived at the server in a short time.

2681548 (1092656)

## MF Directory Server

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- The Enterprise Server Administration no longer terminates when trying to display a list of users registered on an external Security Manager.

2788461 (1095505)

- The 64-bit MFDS is now able to read and write XML configuration data.

## MFA Server

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- This release provides a fix for abend 0C4 in XDBWWWM0.

## MFA SyncMon

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- Previously, PDS members without ISPF statistics caused an error message "Input string was not in a correct format" when processing the timestamp. Now the current time is used. SyncMon2 also downloads the entire PDS every time.

2783738 (1094996)

- The product now displays a useful error message and not an exception when a user specifies an illegal output.
- Removing a rule from the SM2 dialog no longer causes other rules to be removed from the dialog.

## MFBSI

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- Support has been added for the Control-M \$JULIAN/\$GREG/\$WEEK# functions using the Control-M expression or variable parameters.

2698531 (1094301)

## MFIO

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- Specifying a leading ";" in an environment variable containing a file path no longer results in the file not being found.

2693286 (1093707)

## MTO: CICS ECM/Preprocessor/Translator

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- You no longer receive CICS AEIA errors generated on a BMS MAP LOAD.

2792682 (1096074)

## MTO: CICS Emulation

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- Passing an invalid program name to a CICS function (such as LOAD, XCTL or LINK) could cause CICS to get into a loop and the transaction would appear to hang. This has been fixed and in such cases, a correct EIBRESP code is returned.

2786729 (1096085)

- If an error occurs during PLTPI processing, mainframe CICS enterprise servers now display a notification which enables the operator to cancel the startup or ignore the error. The new environment variable ES\_ABORT\_PLTPI\_ERROR provides a limited support for configuring this behavior. Using this environment variable, you can configure an enterprise server to abort the initialisation if a PGMIDERR error or an ABEND occurs during PLTPI. The control is positional: ES\_ABORT\_PLTPI\_ERROR=YN - abort on PGMIDERR ES\_ABORT\_PLTPI\_ERROR=NY - abort on ABEND ES\_ABORT\_PLTPI\_ERROR=YY - abort on PGMIDERR or ABEND

2785311 (1095152)

- On an EXEC CICS RECEIVE, the BMS field values are now correctly received when a map is not positioned at line 1, column 1.

2780436 (1094636)

- ASSIGN INVOKINGPROG now correctly returns the name of remote invoking programs. Also, when a program is invoked using an XCTL or a LINK call from a program invoked through a DPL call, the INVOKINGPROG name is now set correctly.

2780411 (1094631)

- You no longer receive an RTS 114 in dfhebms in a conversational transaction when there is an EXEC CICS DELAY between the SEND and RECEIVE statements.

2780331 (1094621)

- Trying to access VSAM files using the alternate index (without opening the file first) would previously produce an error.

2695934 (1094069)

- Previously, the BMS paging overflow condition was raised incorrectly when using trailer maps.

2694503 (1093880)

- Previously, when a group contained the length and the attribute on the group descriptor but not on the group item, the length and the attribute for all items of a group was always being taken into an account.  
2685387 (1093120)
- When a system abend is issued, the process should terminate normally cleaning up temporary files and releasing resources (this is known as a soft-kill). If the process cannot be ended normally, casmgr terminates it without performing a clean-up and releasing resources (this is known as a hard-kill) and also issues a console notification. If the "dump on System Abend" option in ESMAC is enabled, this also produces a dump file with information about the system abend.  
2652085 (1093330)

### **MTO: CICS ESMAC**

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- You can now use the environment variable ES\_DISABLE\_DFLTUSR\_SIGNON to control default user signon to ESMAC: if set to 'Y' or 'y', then the default user is not used, and the SIGNON screen is presented for the user to sign on.  
2649506 (1090376)

### **MTO: CICS Supplied Transactions**

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- When installing an FCT and the file had previously been installed, the entry in the alpha chain was not deleted which would then corrupt the chain.  
2675650 (1092077)

### **MTO: IMS DB**

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- When an IMS application compiled as EBCDIC issued an INIT STATUS call, the DB PCB status codes were incorrectly initialized to ASCII spaces.  
2789287 (1095804)
- If a data scrape is required for a database as part of the automatic rollback recovery, the time when the data scrape started and when it ended will be recorded in the ROLLBACK.LST file.  
2784951 (1095117)
- When using the IMS feature LOCALDLI, the DB position was lost when a DLI or a DBB application switched to another PCB, then issued a DB call and then returned and issued a get-next call.  
2698794 (1094555)
- When using IMS DB with XA resource manager(s), there is no longer a small window of opportunity for mixed results if the IMS DB Control process crashed between the last DB call from an application and the commit.  
2694104 (1093779)

### **MTO: IMS MFS**

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- The DPM device type is not supported and, if found in the MFS source, MFSGEN used to fail. The generate process should not abort in such cases so, instead, you now receive a warning message that these types of devices are not supported, and MFSGEN will continue for the other device types in the source file.  
2790130 (1095760)

- Output screen fields will now be padded correctly. In order to apply the fix, you must regenerate the MFS sources. The rules for padding are that any FILL characters specified on the DPAGE macro always take precedence over any FILL characters specified on the output MSG macro. If no FILL characters are specified, the default behavior is to pad with the SPACE.

- DPAGE must specify FILL=NONE in order for FILL characters from the output MSG macro to take effect.

- FILL=NULL means that no padding is done. If a NULL character (default is X'1A') is moved to the first byte of an output field, no padding is done. This mimics mainframe behavior. If the NULL character is moved to any other position in the field, then padding is performed after that NULL.

2695885 (1093971)

#### **MTO: IMS Other**

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- When a batch program defined with the processing option GO opened an IMS database in read-only mode before any other access, the database was incorrectly opened exclusively.

2789746 (1095709)

#### **MTO: IMS TM**

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- Receiving IMS Connect requests with no data (for example, acknowledgement (ACK) messages) no longer produce a Run-Time System error.

2794885 (1096358)

- Issuing a /STOP USER command from ESMAC no longer results in an RTS 114 error.

2790030 (1095747)

- You can now use the ES\_IMS\_SYSABEND\_RESTART\_TRAN environment variable to configure the IMS feature of automatically restarting aborted transactions after an Enterprise Server system abend. Set ES\_IMS\_SYSABEND\_RESTART\_TRAN to "Y" to enable transaction-restart or to "N" to disable it. By default, transaction-restart is enabled.

2784980 (1095125)

- You no longer receive an error RTS200 after performing an IMS logon twice as the same user.

2784536 (1095066)

- Heavy IMS Connect traffic no longer causes the IMS message queue to fill up abnormally.

2782816 (1094887)

- In ESMAC, changing the Codeset property of an IMS transaction from EBCDIC to ASCII is now processed correctly.

2780468 (1094826)

- CASTMC no longer crashes when the ES\_OTMA\_TIMEOUT variable is specified.

2699870 (1094445)

- Using an express alternate PCB to do an insert no longer causes an incorrect DFS2082 message.

2685153 (1093050)

#### **MTO: JCL ESMAC**

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- Using the JCL OUTPUT statement to specify a class for a spool file no longer leaves the "active" cesspool present after the job has ended.

2792943 (1096043)

- Previously, on the JES spool screen in ESMAC, if an automatic refresh was set up, the screen would revert to displaying the contents of the Output queue after a refresh even if the radio button for another queue was selected and showing as enabled on the screen.

2785064 (1095144)

## **MTO: JCL MVS**

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- An error when reading data from SYSTSIN in an IKJEFT job, which caused an execution loop, has been corrected.

2787712 (1095763)

- A problem that caused a DD override to be applied to the wrong procedure step when duplicate procedures were used has been corrected.

2786158 (1095283)

- All system abends of the format S<x>22 (except S722) cause the system to terminate the job step and bypass successive steps. For example, when executing an IF/THEN/ELSE/ENDIF statement in the JCL, any of the supported system abend codes (except S722) produced on the IF statement will bypass the THEN or ELSE clauses, regardless of any tests on the IF statement. When S722 is produced, the successive clauses are processed as normal.

2695873 (1093984)

- When running IKJEFT\* steps, if a serious file error occurs when reading the command file, the step will exit with a non-zero COND CODE.

2685678 (1094478)

- An error with JES printing, where the file was being deleted before it had been printed, has been fixed.

2676540 (1092223)

- A JCL error is always generated when a literal within a JCL stream contains an opening quote but no closing quote. Previously, in certain circumstances, an attempt was made to process such literals, resulting in unexpected behavior.

2671742 (1092195)

- Using the DLM option on a DD statement sometimes caused problems with processing quotes on the PARM option in a subsequent EXEC statement.

2648116 (1089458)

- JCL PROCs' variable substitution now works correctly for nested PROCs when the PROCs use the same variable name.

2511372 (1078961)

## **MTO: JCL System Catalog**

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- A problem where JCL sysout showed "€" instead of spaces has been fixed.

2698575 (1094331)

- Deleting dynamic PDS member files from the catalog did not remove the profile file (\*.pro). The file will be deleted now.

2696480 (1094210)

- You no longer receive intermittent CTF trace error messages in the ESMAC Catalog view page.

2693148 (1094423)

- PDS libraries now support environment variables in the PCDSN.

2605606 (1087110)

- When allocating a dataset, if you specify a PC name, the system catalog API checks that PC name. If the name starts with the string "<CATALOGFOLDER>" or with an environment variable, the system catalog API also checks any slashes in the name and, if necessary, automatically changes them to the ones appropriate for the OS system on the machine (Windows or UNIX).

### **MTO: JCL TSO**

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- Calling setenv with a field shorter than the maximum allowed for DsnAndDcb no longer results in a Run-Time System error 163.  
2668741 (1091426)

### **MTO: JCL Utils**

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- If not specified for SYSUT2, RECFM is now correctly copied from SYSUT1 to SYSUT2.  
2788751 (1095629)
- A problem which caused exclusive locks to be kept inappropriately when allocating a GDG bias has been fixed.  
2787281 (1095459)
- DSNALI now accepts call arguments in EBCDIC format.  
2694219 (1093848)
- Zero length records are now allowed for all variable files. For ESDS and KSDS files, the minimum record length should be at least 1.  
2679809 (1092804)
- The IEBGENER utility was not writing the "number of records copied" to SYSPRINT when SYSPRINT was defined as LSEQ.  
2679194 (1092557)
- Before deleting a spool file, Spool housekeeping now checks that the file does not belong to any active job. Previously, when short retain times were specified, a spool file could be deleted before its parent job had finished.  
2676836 (1092207)
- When emulating the IEBCOMPR utility, the comparison only stops processing when 10 consecutive mismatches are found.  
2662123 (1090743)
- When a LSEQ SYSUT1 file is copied to a SYSUT2 spool file with no DCB, the default RECFM is now correct.  
2658284 (1090437)
- DSNRLI calls to a SIGNON or a CREATE THREAD following a TERMINATE THREAD are now being passed to the switch modules correctly.

### **MTO: JCL Utils - IDCAMS**

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- The IDCAMS REPRO command now allows an empty dynamic PDS member to be used as INFILE, if it is either an existing PDS member, or if it has been opened for OUTPUT/EXTEND/UPDATE.  
2788741 (1095559)
- The LISTCAT LVL command now returns a return code of zero for empty GDG base entries, to emulate mainframe behavior.

2787482 (1095522)

- IDCAMS ALTER no longer renames the catalog entry of a file if it is not possible to rename the physical file.

2695027 (1094111)

- The IDCAMS DELETE command now supports the use of wildcard characters when deleting dynamic PDS members.

2684823 (1094971)

- IDCAMS now processes TSO ALLOCATE statements.

2581587 (1084939)

## **NCG**

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- Using a "MOVE alphanumeric-item to numeric-item" statement in programs generated with the CHECKNUM directive now correctly results in a Run-Time System error 163 (invalid numeric data) message.

2796191 (1096340)

- Building programs that use DIALECT(RM) and that contain calls with more than eight parameters no longer fails with a RTS 114 error.

2788746 (1095583)

- An issue with statements of type "compute edited-item = expression", where expression evaluates to a value larger than the value that edited-item can store, and so truncation is required, has been fixed. This only affected Intel x86 32-bit generated code when the HOSTARITHMETIC Compiler directive was set.

2782400 (1094841)

- Compiling code that contains alphanumeric intrinsic functions with very long parameters could previously result in an error at generate time. It now generates successfully.

2782306 (1094942)

- A bug in the MOVE statement where the source item is S9(15)V99 COMP-3 and the target item S9(8)V9(9) comp-3 has been fixed.

2697129 (1094607)

- The performance of arithmetic with COMP-3 items on the 390 platform has been greatly improved.

2683340 (1092877)

- Programs that include 8-byte comp/comp-5 variables in a PERFORM loop termination condition, with the OPT Compiler directive specified, now compiles successfully in 32-bit mode.
- An issue with the code generated for alphanumeric moves on Intel x86-32 when the OPT(4) Compiler directive was specified has been fixed.
- You no longer receive an RTS 114 error when processing invalid directives.
- You no longer receive an RTS 200 error in debuggable generated code (.gnt) programs compiled with the amode(31) Compiler directive.
- A problem with setting breakpoints on some EXEC SQL statements has been fixed.

## **OO Run-Time System (32-bit)**

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- Native object-oriented programs with multiple methods that use local-storage data now execute as expected.

## **Run-Time System**

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- You can now use a configuration file that has a spacey filename to start Audit Manager as a service.  
2785459 (1095200)
- The debugger now displays correctly the content of non-ASCII characters in programs compiled with the CHARSET(EBCDIC) Compiler directive.  
2782246 (1094947)
- In some situations, the processing of a Run-Time System error in an Enterprise Server container could cause the container to hang or crash. This has been fixed.  
2690883 (1094783)

## Setup Issues

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- The mfsupport permissions have been modified so that any user with access to the product can now run mfsupport.  
2781319 (1094713)

## SQL: Cobsq1

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- COBSQL now correctly processes source lines that only contain a single character at column 72.  
2781493 (1094727)
- COBSQL now correctly processes SQL statements with continuation lines.  
2781299 (1094716)

## SQL: DB2 ECM

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- A new directive option, DB2(ALEBRA), has been added to the DB2 ECM preprocessor to prevent ASCII/EBCDIC translation of host variables used in SQL statements. DB2(ALEBRA) is applicable only when using the EBCDIC character set and the Alebra Remote DB2 Access software.  
2789897 (1095736)
- Programs using SQL TYPE AS CLOB compiled with host variables were flagged with COBCH0233S Compiler error because the reserved word "AS" is not supported in mainframe dialects such as Enterprise COBOL. The DB2 pre-compiler now resolves this by adding "AS" as a valid reserved word.  
2698988 (1094584)
- While editing the source code in the IDE during syntax checking, the DB2 pre-compiler sometimes generated incorrect error messages for DECLARE CURSOR statements if they were defined in the WORKING-STORAGE section when the DB2 BACKGROUND PARSING option was set to NONE.  
2698133 (1094267)

## SQL: OpenESQL

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- The OpenESQL preprocessor incorrectly terminated a host variable lookup resulting in a COBES0109 error.  
2795391 (1096265)
- Using a SQL Server fast forward cursor with an ODBC driver that does not support MARS caused a rollback when the cursor was closed.  
2793798 (1096126)

- Applications migrated from earlier products that used the tokens ON and ROW\_NUMBER as column names in SQL statements were compiling with errors.  
2793301 (1096088)
- The OpenESQL preprocessor produced a compilation error for EXEC SQL select ... INTO <TableName> ... END-EXEC.  
2792715 (1096102)
- The OpenESQL runtime for ADO.NET was incorrectly returning the native database error in SQLERRD(1).  
2790152 (1095758)
- A problem fetching decimal columns using OpenESQL for ODBC in locales where the decimal point is not '.' has been fixed. In addition, to optimize performance for the majority of ODBC applications, the default setting for SQL(DECDEL) has been changed from NODECDEL to DECDEL=LOCAL. Use an explicit SQL(NODECDEL) directive for Windows applications that change the effective locale dynamically at runtime.  
2788986 (1095766)
- The insertion of values larger than 8000 characters from a PIC X host variable into a SQL Server VARCHAR(MAX) column caused an error.  
2787574 (1095428)
- Some valid ODBC SQL expressions caused the OpenESQL preprocessor to issue errors when it encountered a 'BY' token.  
2787068 (1095429)
- Valid SQL "PARTITION BY" clauses caused compiler errors when using OpenESQL.  
2786991 (1095386)
- Performance of the OpenESQL runtime system for ODBC required improvement when fetching character data.  
2785410 (1095165)
- The OpenESQL preprocessor generated invalid code resulting in undefined ECM error code 302 when an array host variable was mixed with regular host variables in a parameter list in the EXEC SQL CALL statement.  
2785284 (1095354)
- A memory leak occasionally occurred when multiple prepares of the same dynamic SQL statement existed in the OpenESQL JDBC runtime system.  
2784039 (1095123)
- The OpenESQL preprocessor incorrectly interpreted the SQL CONCAT character as DBCS when using SQL(CONCAT=124) for the CONCAT character, resulting in compilation error.  
2783615 (1094981)
- When compiling for ODBC, the OpenESQL preprocessor now generates an error message, COBES0123, when it encounters an EXEC SQL statement that contains a host or indicator variable that uses a subscript. Subscripts of this type are not supported in ODBC.  
2781022 (1094686)
- The GEN-HV-FROM-GROUP SQL compiler directive option intermittently caused truncation of SQL VARCHAR data type occurrences.  
2780748 (1094649)
- SQL(CHECK) caused compilation errors when compiling source programs containing DBCS characters in column names. Programs containing DBCS characters in column names that were compiled using SQL(NOCHECK) caused runtime errors.  
2780185 (1094588)

- The GEN-HV-FROM-GROUP compiler directive option has been added to the OpenESQL preprocessor to support the selection of multiple levels in a group item. Specify SQL(GEN-HV-FROM-GROUP) when compiling to generate host variables for each elementary definition in a group record.  
2699622 (1094395)
- OpenESQL for JDBC did not correctly open insensitive cursors.  
2699442 (1094415)
- OpenESQL Assistant was inconsistently inserting the query function in the "B" area for queries and column 8 for other code.  
2697908 (1094190)
- The OpenESQL preprocessor sometimes incorrectly defined host variables when an indicator variable array was used with an SQL statement.  
2696332 (1094052)
- You no longer receive errors when parsing Oracle INTERVAL expressions.  
2694071 (1094337)
- A problem that prevented a COBOL stored procedure from being called from a nested trigger has been fixed.  
2690749 (1094042)
- The restriction that program names in an application must be unique in the first 24 characters in order for OpenESQL to handle cursors correctly has been increased to 30 characters. This is to restore backwards compatibility with earlier Micro Focus products.  
2685901 (1093808)
- HCOSS now provides better control for ODBC applications that use data that:
  - o Uses the DATE and TIME formats specified by SQL(DATE) and SQL(TIME)
  - o Is stored as character data in the database
 You can now do any of the following:
  - o Specify host variable types to use with DETECTDATE.
  - o Set the ODBC runtime to determine parameter data types by querying the server (this option uses additional runtime overhead).
  - o Tag string literals in SQL statements with special SQL comments that specify the type of literal. With this option, literals tagged with /\*#CHAR\*/ are not reformatted when SQL(DIALECT=MAINFRAME) is set.
 2685625 (1093540)

## Unassigned

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- A channel created by a program invoked by a CALL statement is now visible to the programs running at the same level.  
2698335 (1094225)

## Web Service Client

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- Namespaces not declared on the schema root, i.e. declared either with an element declaration or on the WSDL root, will now be processed properly and no longer ignored.  
2583853 (1085102)

## XDB Server

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- XDB Server now supports a value of up to 256G for the PIECESIZE clause on a CREATE INDEX statement.  
2784918 (1095176)

- The syntax compatibility of "partition by size every integer G" in the CREATE TABLE SQL statement has been fixed.  
2784917 (1095177)
- The MAXPARTITIONS clause is now allowed on CREATE TABLESPACE statements.  
2784916 (1095178)
- The DATACLAS clause is now supported on CREATE STOGROUP statements.  
2784915 (1095179)
- You now receive correct results when certain SQL statements are used with CASE and ORDER BY on the projection.  
2781926 (1094773)
- You can now use the reserved word DOCUMENT in SQL statements as an identifier.  
2781673 (1094744)
- XDB server threads no longer exclude themselves from executing. Previously, this happened as a result of conflicts with rapid sequence update operations.  
2695974 (1094282)
- A problem where CICS SEP processes would run out of SQL Option cursors has been resolved.  
2693104 (1093639)
- A problem where a large number of concatenations could cause an XDB engine stack overflow has been resolved.  
2686565 (1094072)

#### **XDB: Problems not classed above**

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- Bootstrapping now assumes SBCS and conversion to Unicode tables is handled automatically.  
2699728 (1094431)

#### **XML syntax support runtime**

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- The HTMLPP preprocessor now handles copybooks with filenames longer than eight characters correctly.  
2783315 (1095092)

# Updates and SupportLine

Our Web site gives up-to-date details of contact numbers and addresses.

## Further Information and Product Support

Additional technical information or advice is available from several sources.

The product support pages contain a considerable amount of additional information, such as:

- The WebSync service, where you can download fixes and documentation updates.
- The Knowledge Base, a large collection of product tips and workarounds.
- Examples and Utilities, including demos and additional product documentation.

To connect, enter <http://www.microfocus.com> in your browser to go to the Micro Focus home page.



**Note:** Some information may be available only to customers who have maintenance agreements.

If you obtained this product directly from Micro Focus, contact us as described on the Micro Focus Web site, [www.microfocus.com](http://www.microfocus.com). If you obtained the product from another source, such as an authorized distributor, contact them for help first. If they are unable to help, contact us.

## Information We Need

However you contact us, please try to include the information below, if you have it. The more information you can give, the better Micro Focus SupportLine can help you. But if you don't know all the answers, or you think some are irrelevant to your problem, please give whatever information you have.

- The name and version number of all products that you think might be causing a problem.
- Your computer make and model.
- Your operating system version number and details of any networking software you are using.
- The amount of memory in your computer.
- The relevant page reference or section in the documentation.
- Your serial number. To find out these numbers, look in the subject line and body of your Electronic Product Delivery Notice email that you received from Micro Focus.

On Windows, if you are reporting a protection violation you might be asked to provide a dump ( `.dmp` ) file. To produce a dump file you use the **Unexpected Error** dialog box that is displayed when a protection violation occurs. Unless requested by Micro Focus SupportLine, leave the dump setting as `Normal` (recommended), click **Dump**, then specify a location and name for the dump file. Once the dump file has been written you can email it to Micro Focus SupportLine.

Alternatively, you might be asked to provide a log file created by the Consolidated Tracing Facility (CTF) - a tracing infrastructure that enables you to quickly and easily produce diagnostic information detailing the operation of a number of Micro Focus software components.

### Data Manager

When using Data Manager, please be ready to provide the following in addition:

- The version number for the z/OS component, found on the **Main Menu** panel.
- Whether you are using the Standard or Client/Server configuration.

- The data stores you are working with, including client-side and server-side versions where appropriate.
- Details of the data store contents, for example:

```
DDL, DCLGEN, or SYSPUNCH (for SQL data stores)
Copybooks (SEQ, VSAM, GDG, DL/I)
FDT (ADABAS)
DBD (DL/I)
```

## Creating Debug Files

If you encounter an error when compiling a program that requires you to contact Micro Focus SupportLine, your support representative might request that you provide additional debug files (as well as source and data files) to help us determine the cause of the problem. If so, they will advise you how to create them.

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