Micro Focus Visual COBOL Development Hub 2.2 Update 1

Release Notes

Contents

Micro Focus Visual COBOL Development Hub 2.2 Update 1 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.

> **Note:** Visual COBOL now includes support for creating Web service and Enterprise Java Bean applications using the Interface Mapping Toolkit (IMTK) in conjunction with Enterprise Server. If you are upgrading to this release from an earlier version of Visual COBOL, you may need to apply for a new authorization code in order to access the functionality - please contact Micro Focus SupportLine to receive an updated authorization code. Note that the Visual COBOL Personal Edition license does not support the IMTK functionality.

Micro Focus Heartbleed Update

The OpenSSL library used in this product has been updated to version 1.0.1g to fix the "Heartbleed" vulnerability with TLS heartbeat requests.

Installation

> **Note:** If you are installing on Solaris, please read *UNIX Installer Issues* first.

System Requirements for Visual COBOL Development Hub

Hardware Requirements for Micro Focus Visual COBOL Development Hub

The disk space requirements are approximately:

Platform	Setup file size (MB)	Disk space required for the installation (GB)	Disk space required for running the product (MB)	Sentinel RMS license server (MB)
POWER running AIX	361	1.44	722	33
HP IA	695	2.7	1390	61
System Z running Red Hat Linux	315	1.26	630	34
x86-64 running Red Hat Linux	324	1.3	648	40
SPARC running Solaris	370	1.48	740	38
x86-64 running Solaris	346	1.38	692	30
System Z running SuSE SLES	319	1.28	638	34
x86-64 running SuSE SLES	328	1.31	656	40

Operating Systems 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*.

Software Requirements

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

- The pax archiving utility is required by the setup file. Pax is distributed with most UNIX/Linux systems but, if it is missing, you must install it separately. To verify pax is installed, run `pax --help` or `pax --version` at the command line.
- On Red Hat 6.*x*, you must have the following operating system libraries installed:

All Visual COBOL products	glibc-*.x86_64 glibc-*.i686 libgcc-*.x86_64 libgcc-*.i686 libstdc++-*.x86_64 libstdc++-*.i686
Additional libraries required to use the core_on_error runtime variable	gdb - the gdb packages (for the GNU Project Debugger) can be installed from the install media for your OS.
Additional libraries for Micro Focus Visual COBOL Development Hub	glibc-devel-*.x86_64 glibc-devel-*.i686

In addition, on IBM System z (390), you must have the following operating system libraries installed:

Additional libraries for Micro Focus Visual COBOL Development Hub	glibc-devel-*.s390 glibc-devel-*.s390x

Visit the *Red Hat Web site* for more information.

- Xterm, the terminal emulator for the X Window System, is part of your UNIX/Linux distribution but is not installed by default. Use your UNIX/Linux installation media to install it.

- Oracle's Java Platform, Enterprise Edition (Java EE) 6 or Java 7 is required to execute COBOL JVM code and for native COBOL and Java interoperability. The earliest supported release of Java 6 is 1.6 Update 27. You can download Oracle's Java EE from *www.oracle.com* and install it anywhere on your machine.

    Note:
    - On AIX and zLinux, you need to have IBM's JDK. The earliest supported release of IBM's JDK 1.6 is 1.6.0.13. You can get IBM's AIX JDK from *IBM's Web site*.
    - On HP-UX, you need to have HP-UX JDK. The earliest supported release of HP-UX JDL 1.6 is Java 6.0.13. You can get the HP-UX Java JDK from *HP's Web site*.

Before you start the installation, you need to set the environment as follows:

- You need to set the JAVA_HOME environment variable. When installing the product, set this variable to a 32-bit Java installation or the installation terminates. For example, execute the following:

    ```
    JAVA_HOME=java_install_dir
    ```

    where *java_install_dir* is the path to the JAVA installation directory such as `/usr/java/javan.n`
- You need to add `$JAVA_HOME/bin` to your system PATH variable. To do this, execute:

    ```
    export PATH=$JAVA_HOME/bin:$PATH
    ```
- You need to set the LANG environment variable to pick up localized messages. The LANG settings are English and Japanese only.

    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 Visual COBOL 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. To check the version of the license server on UNIX, run `/var/microfocuslicensing/bin/mfcesver` or `/var/microfocuslicensing/bin/cesadmintool.sh`.

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 for Micro Focus Visual COBOL Development Hub

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

Application server support for JVM COBOL

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Restriction: This topic applies only when the Enterprise Server feature is enabled.

The following application servers are supported using the following JDKs:

Application Servers	JDK version	Containers support version
Tomcat 7.0.39	1.6 / 1.7	Servlets 2.5
JBoss 6.1	1.6 / 1.7	Servlets 2.5
WebLogic 12.1.1	1.6 / 1.7	Servlets 2.5
WebLogic 12.1.1 on AIX 6.1	1.6.0 SR10 FP1 / 1.7 Release 1	Servlets 2.5
WebSphere 8.5	1.6 / 1.7	Servlets 2.5
WebSphere 8.5 on AIX 6.1	1.6.0 SR10 FP1 / 1.7 Release 1	Servlets 2.5

Note:

- On AIX and zLinux, you need to have IBM's JDK. The earliest supported release of IBM's JDK 1.6 is 1.6.0.13. You can get IBM's AIX JDK from *IBM's Web site*.
- On HP-UX, you need to have HP-UX JDK. The earliest supported release of HP-UX JDL 1.6 is Java 6.0.13. You can get the HP-UX Java JDK from *HP's Web site*.
- On all other platforms, you need Oracle's JDK. The earliest supported release of Oracle's JDK 1.6 is 1.6.027. You can download Oracle's JDK from *Oracle's Web site*.

Java Development Kit (JDK)

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Compiling Java	Either the IBM or the Oracle Java Development Kit (JDK), version 1.5 or later, is required for compiling Java.
Interface Mapping Toolkit (IMTK)	**Restriction:** This feature applies only when the Enterprise Server feature is enabled.

The JDK is required for generating Java interfaces from the Interface Mapping Toolkit or the `imtkmake` command.

Java Beans	Your Java client needs to be compiled with JDK 1.6 or greater.
EJBs	Use the same JDK vendor and version that is used by the application server.

After installing the JDK, you need to set up your Java environment.

Database Access

Before you can use Visual COBOL to develop and deploy SQL applications that use COBSQL, DB2 ECM, or OpenESQL, ensure any third-party software prerequisites are installed and the environment is set properly.

Database Access - COBSQL (Pro*COBOL)

Note: COBSQL (Pro*COBOL) is supported for native COBOL only.

Availability

Feature/Platform	32-bit	64-bit
x86-64 running Red Hat Linux	X	X
x86-64 running SuSE Linux	X	X
IBM System p running AIX	X	X
IBM System z running SuSE Linux	X	X
Itanium running HP-UX	X	X
x86-64 running Solaris	X	X
SPARC running Solaris	X	X

XA Switch Module	When the Enterprise Server feature is enabled, the Oracle XA switch module is provided for COBSQL (Pro*COBOL), and is available on the same platforms as are indicated in the *Availability* section above.
Certification of RDBMS Precompilers for Native COBOL	Certification of RDBMS precompilers with Micro Focus products is the responsibility of the RDBMS vendor, rather than Micro Focus. Certification information can be found within the relevant Oracle documentation. If you have an Oracle MetaLink account (*http://metalink.oracle.com*), document # 43208.1 provides details of all language compilers certified by Oracle for use with their precompilers.
Preprocessors	COBSQL supports the following database preprocessors:

- Sybase Open Client Embedded SQL/COBOL Version 11.1 or later
- Oracle Pro*COBOL Version 11.1 (11gR1) or later
- Informix Embedded SQL/COBOL Version 7.3 or later

Compiling
On x86 and x86-64 platforms, when compiling with COBSQL for use with Oracle, do not use the COBSQL directive option NOMAKESYN, since this directive results in COMP host variables, and on Intel platforms these are incompatible with the native byte order expected by Oracle.

Executing
On HP-UX, to execute an application precompiled using Pro*COBOL (or COBSQL) after you have created a callable shared object of Oracle DBMS routines, you need set an environment variable, LD_PRELOAD, to point to the Oracle client callable shared object, for example:

```
LD_PRELOAD=$ORACLE_HOME/libdir/libclntsh.so
export LD_PRELOAD
```

where *libdir* is:

- lib32 for 32-bit environments
- lib for 64-bit environments.

A script is available that creates an executable run-time system or a callable shared object containing Oracle support. You can find the script in the Micro Focus Knowledge Base article titled *Building and executing Pro*COBOL applications on UNIX*.

Database Access - OpenESQL

Availability

Feature/Platform	Native COBOL 32-bit	Native COBOL 64-bit
x86-64 running Red Hat Linux	X	X
x86-64 running SuSE Linux	X	X
IBM System p running AIX	X	X
IBM System z running SuSE Linux	X	X
Itanium running HP-UX	X	X
x86-64 running Solaris	X	X
SPARC running Solaris	X	X

Native COBOL
- OpenESQL supports access to relational databases using ODBC 3.0-compliant drivers
- Refer to your driver vendor's documentation to determine whether your driver is suitable for use with OpenESQL

Database Access - DB2 ECM

Availability	Feature/Platform	32-bit	64-bit
	x86-64 running Red Hat Linux	X	X
	x86-64 running SuSE Linux	X	X
	IBM System p running AIX	X	X
	IBM System z running SuSE Linux	X	X
	Itanium running HP-UX		X
	x86-64 running Solaris		
	SPARC running Solaris	X	

XA Switch Module   When the Enterprise Server feature is enabled, the DB2 XA switch module is provided and is available on the same platforms as are indicated in the *Availability* section above.

Certification of RDBMS Precompilers for Native COBOL   Certification of RDBMS precompilers with Micro Focus products is the responsibility of the RDBMS vendor, rather than Micro Focus. You can find IBM document certification information for DB2/COBOL applications within the IBM Information Center for DB2, in the topic *Support for database application development in COBOL*.

Preprocessor   DB2 ECM supports the following database preprocessors:

- IBM DB2 LUW Version 9.5 or later
- IBM DB2 Connect Version 9.5 or later

XML Extensions

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- XML Extensions has the same requirements as Visual COBOL. Both 32-bit and 64-bit versions are available. See the *XML Extensions for Visual COBOL*, available from the Visual COBOL product documentation section of the Micro Focus SupportLine Web site for more details.
- Additionally, XML Extensions may be used in conjunction with Terminal Server.

Installing Visual COBOL Development Hub

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.

Installing

Note:

During the installation process, the installer configures the product's Enterprise Server System Administrator Process User ID. The Process User ID will be the owner of all Enterprise Server processes except the one for the Micro Focus Directory Server (MFDS). The Directory Server process (Enterprise Server Administration) runs as root as this allows it to access the system files and ports.

All Enterprise Server processes you start from Enterprise Server Administration run under the Process User ID which can affects the file access and creation.

By default, the installer uses the login id of the user that runs the installer for the Process User ID. To change the user id after you complete the installation, execute `$COBDIR/bin/casperm.sh`.

These are the steps to install this product:

1. Give execute permissions to the setup file:

   ```
   chmod +x setup_visualcobol_devhub_2.2_update1_platform
   ```

2. Run the installer with superuser permissions:

   ```
   ./setup_visualcobol_devhub_2.2_update1_platform
   ```

   If you don't run this as superuser you will be prompted to enter the superuser password during the installation.

   The COBOL environment is installed by default into `/opt/microfocus/VisualCOBOL`, (COBDIR).

   To install in a different location use the `-installlocation="Location"` parameter to specify an alternative directory location. For example:

   ```
   ./setup_visualcobol_devhub_2.2_update1_platform -installlocation="full path
   of new location"
   ```

   Note: You can use variables or the tilde syntax for the path for `-installlocation`. For example, the following examples are equivalent:

   ```
   -installlocation="/home/myid/installdir"
   ```

   ```
   -installlocation="~myid/installdir"
   ```

   ```
   -installlocation="~/installdir"
   ```

   ```
   -installlocation="$HOME/installdir"
   ```

   You can see details about which additional parameters can be passed to the install script if you enter the `-help` option.

   You can use the following options to configure the Enterprise Server installation: `[ -ESsysLog="location" ] [ -ESadminID="User ID" ] [ -CASrtDir="location" ]`, where:

   -ESsysLog Specifies a location in which the build will create the Enterprise Server System log file - for example, `-ESsysLog="/home/esuser/logs"`. The default location is `/var/mfcobol/logs`.

   -ESadminID Sets the Enterprise Server System Administrator Process User ID from the command line - for example, `-EDadminID="esadm"`. The default user ID is the one that runs the installer.

   -CASrtDir Specifies the location were the Enterprise Server run-time system files are placed - for example, `-CASrtDir="/home/esuser/casrt/es"`. The default location is `/var/mfcobol/es`.

   Note:

   - The installation of this product could affect the SafeNet Sentinel licensed components running on your machine. During installation licensing is shutdown to allow files to be updated. To

ensure the processes running on your machine are not affected, you need to use the `-skipsafenet` option, which skips the installation of SafeNet:

```
./setup_visualcobol_devhub_2.2_update1_platform -skipsafenet
```

- To protect the SafeNet Sentinel installation from accidental updating you can create an empty file named `SKIP_SAFENET_INSTALL` in `/var/microfocuslicensing/` as follows:

```
touch /var/microfocuslicensing/SKIP_SAFENET_INSTALL
```

While the file is present, the SafeNet installer does not make changes to the installation or shutdown the running license daemons. If licensing needs to be updated later, remove the file and install Sentinel RMS server manually.

1. To set up your product, execute:

```
. /opt/microfocus/VisualCOBOL/bin/cobsetenv
```

2. To verify that your product is installed, execute:

```
cob -V
```

⚠️ **Important:** These commands set the environment only for the current shell. You need to execute them for each new shell that you start.

To avoid having to run `cobsetenv` for every shell, add these commands to the shell initialization files (such as `etc/profile`, `etc/bashrc`).

Note that `cobsetenv` is only compatible with POSIX-like shells, such as bash, ksh, or XPG4 sh. It is not compatible with C-shell or pre-XPG4 Bourne shell.

Installing as an Upgrade

This release works concurrently with the previous version of Micro Focus Visual COBOL Development Hub, so you do not need to uninstall it. There are two options for installing the latest version in this case:

- Move the existing installation to a different location and install the latest version to the default install location specified by the COBDIR environment variable (`/opt/microfocus/VisualCOBOL`, by default).

This ensures you do not need to change your environment. To move the existing older installation to a different location:

1. Execute the following command as root:

```
mv /opt/microfocus/VisualCOBOL /opt/microfocus/VisualCOBOLversion
```

2. Install the latest version as described in the section *Installing*.

- Install the latest version in a different location and set the environment to point to it. To do this, run the Micro Focus Visual COBOL Development Hub installer with the –installlocation option:

1. Execute the following command:

```
. /InstallFile -installlocation="/opt/microfocus/VisualCOBOL"
```

🖊️ **Note:** You can use variables or the tilde syntax for the path for `-installlocation`. For example, the following examples are equivalent:

```
-installlocation="/home/myid/installdir"
```

```
-installlocation="~myid/installdir"
```

```
-installlocation="~/installdir"
```

```
-installlocation="$HOME/installdir"
```

2. Execute cobsetenv to set the environment and point to the new install location:

```
. /opt/microfocus/VisualCOBOL/cobsetenv
```

Note that `cobsetenv` is only compatible with POSIX-like shells, such as bash, ksh, or XPG4 sh. It is not compatible with C-shell or pre-XPG4 Bourne shell.

Installing silently

You can install Micro Focus products silently by using command line parameters to specify the installation directory, user information, and which features to install. You must execute the command with superuser permissions.

You can use the following command line arguments to install silently on UNIX/Linux:

```
–silent -IacceptEULA
```

For example, execute:

```
[as root] setup_filename –silent -IacceptEULA
```

After the application installation is complete you can install the license silently by executing the following commands:

If you have access to the Internet and an authorization code	Run the following as root:
	
	```cd /var/microfocuslicensing/bin```
	```./cesadmintool.sh -authorize AuthorizationCode```

If you don't have access to the Internet but have a file from Micro Focus that contains the license string	Run the following as root:
	
	```cd /var/microfocuslicensing/bin```
	```./cesadmintool.sh -install FileName```
	
	where *FileName* is the name of the text file that contains all the license strings to be used.

UNIX and Linux Installer Issues

Installing on Linux	On Linux, the 32-bit version of Java is required to install and use Visual COBOL for Eclipse. When you start the installation, if the 64-bit version of Java is already installed on your Linux machine, you might not be able to install Visual COBOL. This is a *known issue* with the Oracle Java installers for Linux which prevent you from installing both the 32-bit and the 64-bit versions of Java on the same machine. To work around this problem:
	• Download the 32-bit Java distribution in a compressed .tar format from the Oracle Web site.
	• Untar the distribution into a location different from the one used for the 64-bit Java version. For example, untar in `/usr/local/java32` and not in `/usr/local/java`.
	• Set JAVA_HOME and LD_LIBRARY_PATH to the 32-bit version of Java so that it is used to install and run Visual COBOL.
License Infrastructure Installer	• On some Solaris platforms, you can receive the following error message when SafeNet license server needs to be installed or upgraded on your machine: ```tar: /safenet.tar: No such file or directory``` To resolve this issue, wait for the installation to complete and then perform the following:
	1. Navigate to the `safenet` directory in the COBDIR location.
	2. With superuser permissions execute: `./MFLicenseServerInstall.sh`
	• **Note:** The following information applies when you are installing on Red Hat Enterprise Linux (RHEL) 7. (RHEL 7 is a beta version and support for it is a technical preview only).

Certain configuration changes in RHEL 7 (such as the `/etc/inittab` file no longer available) required a change in the MF SafeNet license installer for this platform and the way you can manually manage the licensing service.

By default, the MF SafeNet licensing service is still configured so that it starts automatically when starting your machine. Only on RHEL 7, you must use the `systemctl` command available with the OS if you need to override the default behaviour – for example, if you do not want run the MF SafeNet licensing service at start-up or if you do not want the service to automatically start when you are configuring trace levels.

1. Create a file, MFSafeNet.service, in `/usr/lib/systemd/system/` with the following contents:

```
----------- start of /usr/lib/systemd/system/
MFSafeNet.service -----------
    [Unit]
    Description=Micro Focus SafeNet licensing daemons.
    Documentation=http://supportline.microfocus.com

    [Service]
    Type=forking
    ExecStart=/var/microfocuslicensing/bin/startboth.sh
    ExecStop=/var/microfocuslicensing/bin/stopboth.sh
    Restart=no

    [Install]
    WantedBy=multi-user.target
-----------   end of /usr/lib/systemd/system/
MFSafeNet.service  -----------
```

2. Use the systemctl command to manage the SafeNet service:

```
[ asroot ] systemctl option MFSafeNet
```

Where some of the values that *option* can take are:

reenable	Installs the SafeNet service.
is-enabled	Checks the status of the SafeNet service. Does not require root privileges.
start	Starts the SafeNet service.
stop	Stops the SafeNet service.
restart	Restarts the SafeNet service.
disable	Disables the SafeNet service so it does not start when the machine is booted.
enable	Enables the SafeNet Service so it starts when the machine is booted.

For more information about systemctl, refer to the help available with the RHEL OS.

License Server You need to configure the computer hostname to ensure the license server will start properly.

To avoid performance issues, "localhost" and the computer hostname must not both be mapped to IP address 127.0.0.1. You should only map "localhost" to IP address 127.0.0.1.

The following is an example of how to specify these entries correctly in the `etc/hosts` file:

```
127.0.0.1 localhost.localdomain localhost
IP machinelonghostname machineshorthostname
```

where *IP* is the unique IP address of the computer in xx.xx.xx.xx format.

Configuring the Remote System Explorer Support

The remote development support from the Eclipse IDE relies upon Visual COBOL Development Hub running on the UNIX machine and handling all requests from the IDE for building and debugging programs. Visual COBOL Development Hub provides a UNIX daemon, the Remote Development Option (RDO) daemon, which initiates the RDO as Eclipse clients connect to it. Whichever environment is used to start the RDO daemon will be inherited for all servers and hence all build and debug sessions.

Configuring the Environment

You may need to configure some aspects of the environment before you start the daemon. This is because when a build or debug session is initiated on the Development Hub from one of the Eclipse clients, the environment used will be inherited from whatever was used to start the daemon. A typical example of the kind of environment that might need to be set up would include database locations and settings for SQL access at build/run time.

Starting the Daemon

⚠ **Important:** Before starting the daemon you must have the following on your UNIX machine:

- a version of Perl
- a version of Java
- the `as` (assembler) and `ld` (linking) programs on the path, as specified by the PATH environment variable

To start the daemon on the default port (4075) as a background process, perform this command with superuser authority:

```
$COBDIR/remotedev/startrdodaemon
```

The daemon will now listen for any Eclipse client processes connecting to that machine on port 4075. If you want to use another port, specify another port number on the `startrdodaemon` command.

The daemon can also be configured to instantiate the servers on a specified port or range of ports. This is particularly relevant when you want to only open certain ports through a firewall. To do this, perform this command with superuser authority:

```
$COBDIR/remotedev/startrdodaemon [<port> | <low port>-<high port>]
```

where:

- *<port>* is the port number the daemon should use to listen for connections from Eclipse on the client machine. If no value is given, it will be assigned a default value of 4075. This value matches the value assigned within the Eclipse installation.

  For example,

  ```
  $COBDIR/remotedev/startrdodaemon 4999
  ```

  This command will start a daemon listening on port 4999 and will use random server ports.
- *<low port>-<high port>* is the range of ports on which the servers (launched by the daemon) should use to communicate with Eclipse on the client machine.

  For example,

  ```
  $COBDIR/remotedev/startrdodaemon 4080 4090-4999
  ```

This command will start a daemon listening on port 4080 and server ports will be in the range 4090 to 4999.

Stopping the Daemon

To stop the daemon, type the following command with superuser authority:

```
$COBDIR/remotedev/stoprdodaemon <port>
```

Repairing on UNIX

If a file in the installation of the product becomes corrupt, or is missing, we recommend that you reinstall the product.

Uninstalling

Note: Before you uninstall the product, ensure that the Enterprise Server instances and the Micro Focus Directory Service (MFDS) are stopped.

To uninstall this product:

1. Execute as root the `Uninstall_VisualCOBOLDevelopmentHub2.2.sh` script in the `$COBDIR/bin` directory.

Note: The installer creates separate installations for the product and for Micro Focus License Administration. Uninstalling the product does not automatically uninstall the Micro Focus License Administration or the prerequisite software. To completely remove the product you must uninstall the Micro Focus License Administration as well.

To uninstall Micro Focus License Administration:

1. Execute as root the `UnInstallMFLicenseServer.sh` script in the `/var/microfocuslicensing/bin` directory.

The script does not remove some of the files as they contain certain system settings or licenses.

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

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.
> - The latest version of the SafeNet licensing software is required. See the *Software Requirements* section in this document for more details.
> - 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 Visual COBOL, contact your sales representative or Micro Focus SupportLine.

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

To start Micro Focus License Administration

Log on as root, and from a command prompt type:

```
/var/microfocuslicensing/bin/cesadmintool.sh
```

Installing licenses

If you have a license file

1. Start the Micro Focus License Administration tool and select the **Manual License Installation** option by entering `4`.
2. Enter the name and location of the license file.

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. Select the **Online Authorization** option by entering `1` and pressing **Enter**.
3. Enter your authorization code at the **Authorization Code** prompt and then press **Enter**

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.

In order to authorize your product you must have the following:

- Your authorization code (a 16-character alphanumeric string).
- The machine ID. To get this, start the Micro Focus License Administration tool and select the **Get Machine Id** option by inputting `6`. Make a note of the "Old machine ID".

If you have previously received the licenses and put them in a text file, skip to step 6.

1. Open the Micro Focus license activation web page *http://supportline.microfocus.com/activation* in a browser.
2. Enter your authorization code and old machine ID and, optionally, your email address in the **Email Address** field.
3. Click **Generate**.
4. Copy the licenses strings from the web page or the email you receive into a file.
5. Put the license file onto your target machine.
6. Start the Micro Focus License Administration tool and select the **Manual License Installation** option by inputting `4`.
7. Enter the name and location of the license file.

To obtain more licenses

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

New Features in 2.2 Update 1

ACUCOBOL-GT Compatibility

The following ACUCOBOL-GT support has been added in this release:

-Di compiler option The -Di compiler option, which initializes Working-Storage data items based in their type, is now supported.

Btrieve Support

Support for the Btrieve file handling system from Pervasive Software Inc. has been added into Visual COBOL.

Support is restricted to native COBOL, in a Windows environment.

Compiler Directives

The following compiler directives have been added in this release:

ILPARAMS Determines the way in which you call a method that contains an array as its last receiving parameter.

INIT-BY-TYPE Initializes Working-Storage Section data items to a default value, according to their type.
- Alphabetic, alphanumeric, alphanumeric edited, and numeric edited items are initialized to spaces.
- Numeric items are initialized to zero.
- Pointer items are initialized to null.
- Index items are initialized to the value 1.

Database Access

The following new features have been added as part of database access support:

DB2 ECM

- Support added for DB2 LUW version 10.5
- Enhanced RETURN-CODE processing

OpenESQL

- Enhanced internationalization support for UNICODE, DBCS and MBCS
- Enhanced GET DIAGNOSTICS statement support
- Enhanced LOB support for CLOB, BLOB and DBCLOB data types
- Enhanced IDE support for OPTION directives

- Now provides support for the creation of save points and rolling back to save points

XA Switch Modules

Restriction: This topic applies only when the Enterprise Server feature is enabled.

The following new features have been added to XA switch module support:

- New generic two-phase commit module for SQL Server
- Support for DB2 LUW version 10.5
- Support for Oracle version 12.1

Enterprise Server Integration in the IDE

You can now use the context menu for the servers in Server Explorer to enable the display of the Enterprise Server log information in .

Fileshare Recovery

Recovery of Fileshare data files has been enhanced.

Rollback recovery is a faster process that aims to fix the files from their failed state.

This process cannot be used in all scenarios, but a new user exit has also been introduced that allows you to programmatically control which files you wish to recover with this process.

Hot backups are also a new introduction, which allow you to perform a backup without having to shut down Fileshare.

Micro Focus Heartbleed Update

The OpenSSL library used in this product has been updated to version 1.0.1g to fix the "Heartbleed" vulnerability with TLS heartbeat requests.

Line Numbering for COBOL Programs

This release provides options for auto-inserting or removing line numbers in source files open the editor. Features include:

- COBOL numbering - line numbers are inserted in the sequence area of the code (columns 1 - 6), starting at 000100 at the first line, and incrementing by 100.

   If it recommended that you use COBOL numbering only if your files are in fixed or variable source format.
- Standard numbering - line numbers are inserted immediately to the right of area B, in columns 73 - 80, starting at 00001000 at the first line, and incrementing by 1000.

   If it recommended that you use Standard numbering only if your files are in fixed format.

- The **Renumber** and **Unnumber** commands available from the context menu in the editor.

Managed COBOL

Visual COBOL now provides support for Java managed means (MBean) in JVM COBOL code that enable you to manage and monitor RunUnits, and to identify certain issues such as leaks and long-running RunUnits.

- You can enable an MBean only for a particular RunUnit level or for all RunUnits you create.
- You can view and use MBeans from programs such as Oracle's Java Mission Control or JConsole.
- MBeans include the `LogicalRunUnitCount` and `LiveRunUnitCount` attributes that enable a visual indication of how many RunUnits are live. if the values of these two attributes are different, this might indicate some issues.

This release includes the following enhancements to the managed COBOL syntax:

Specifying parameters in the method signature	You can now specify passing parameters and returning items in the method signature, instead of using a Procedure Division header. This applies to methods, indexers, iterators, constructors and delegates.
CONSTANT keyword	Use the CONSTANT keyword on a field to protect it from being altered.
Operations on string fields	You can now use the STRING, UNSTRING and INSPECT statements on fields of type string.

Tutorials

This release includes the following new tutorials for managed COBOL:

Deploying JVM COBOL to an Application Server	Using some ready-made sample projects, this tutorial guides you through implementing your JVM COBOL code into an Enterprise JavaBean (EJB), then deploying it to a JBoss application server. Instructions are also included on how to deploy the application to WebSphere and WebLogic application servers.

Run-time Support

The following new features have been added as part of the run-time support

Environment Variables

The following environment variable has been added in this release:

strictvsam	strictvsam enables strict mainframe emulation when processing VSAM files.
	When set to ON and running under mainframe emulation, file status 37 is returned for an existing VSAM file when opened for OUTPUT if the file has data or previously had data written to it, or if the file is of a different format to the file on disk. When set to OFF, file status 0 is returned and a new file is created when an existing VSAM file is opened for OUTPUT. This variable is set to OFF by default.

New Terminfo files

The following terminfo files have been added for this release:

- *ansi80x25* - this is based on the old *ansi* file. A newer version of *ansi* exists in this release that has no function key support, which is consistent with *ansi* terminfo files on various other UNIX platforms. If you currently use *ansi* and require function key support, you should instead set the TERM environment variable to *ansi80x25* to continue previous behavior.

- *xterm-color* and *kterm-color* - these are now available on all UNIX platforms - previously, they were only available on Linux.
- *aixterm-old* (AIX systems only) - this has similar capabilities to the AIX OS terminfo file of the same name. It differs from the existing *aixterm* file, because it has no line drawing capability. Line drawing is only possible with *aixterm* if it is displayed on an appropriate display (X server).
- *vt220-w* - this is the wide (132-column) version of the vt220 file, and is based on the vt100-w file. For more information, see *Wide Terminal Mode* in the documentation referenced at the bottom of this section.

There have been a number of additions and fixes to existing terminfo files; refer to the *Terminfo Database and Terminal Devices* section of the documentation for full details.

There have also been a number of terminfo files that have been removed; refer to the *Backward Compatibility* section for a complete list.

Known Issues

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

In addition, note the following:

COBOL Watchpoints	The debugger ignores a COBOL watchpoint that is hit if there is no statement following the statement that modifies the data on which that watchpoint is set.
Documentation	
Enterprise Server	• The Historical Statistics Facility may generate incorrect records for SSTM-enabled enterprise servers.
ICETOOL Emulation	ICETOOL emulation for managed code is not available in this release.
Installation	• On UNIX, check *UNIX Installer Issues* before you start the installation.
Resource Adapters	Trying to deploy the local resource adaptor `mfcobol-localtx.rar` to WebLogic may fail with a ClassCastException. To work around this issue, you need to deploy `mfcobol-xa.rar` first, then need to undeploy this file and deploy the local one, `mfcobol-localtx.rar`. 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).

- *SQL: COBSQL*

SQL: COBSQL

Back to the list

- COBSQL now displays appropriate COBOL syntax errors after encountering EXEC SQL statement errors.

  2673619 (1093197)

Resolved Issues

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

- *Adis*
- *CAS (COBOL App Server) General*
- *CAS Admin Console*
- *CAS Resource Manager Interface*
- *CAS Security*
- *CAS XA Switch modules*
- *CASRDO*
- *Compiler*
- *Compiler ECM Support*
- *Cobdebug*
- *Documentation*
- *ES Monitor/Control (ESMAC)*
- *File Handling - External File Handler*
- *File Handling - Fileshare*
- *HCO for Microsoft SQL Server*
- *Interface Mapping Toolkit General*
- *JVM - Compiler*
- *JVM - RTS*
- *LE370 Support*
- *MDSA API for CAS*
- *MF Communications Server*
- *MF Directory Server*
- *MF Server Administrator (GUI)*
- *MFIO*
- *Micro Focus Heartbleed Update*
- *NCG*
- *Run-Time System*
- *Setup Issues (UNIX)*
- *SQL: COBSQL*
- *SQL: DB2 ECM*
- *SQL: HCO for SQL Server*
- *SQL: OpenESQL*
- *UNIX Cob*
- *Web Service Client*
- *XDB Server*
- *XDB: Problems not classed above*
- *XML Syntax Support Preprocessor*
- *XML Syntax Support Runtime*

Adis

Back to the list

- REVERSE-VIDEO now works as expected when using the X"AF" function.

2683509 (1092851)

- MS ACCEPT statements now sound a beep when invalid characters are entered into integer or decimal fields. Integer fields no longer accept invalid characters and normalise.

2680081 (1092542)

- MS ACCEPT statements now display numerics with space fill and sign leading so that integers and decimals are appropriately aligned.

2680081 (1092543)

- The attributes specified in the screen section are now displayed correctly after a call to the X"AF" function 81 has been made.

2650012 (1089634)

CAS (COBOL App Server) General

Back to the list

- Multiple casout calls (using the -r option) in a single process now work correctly.

2694290 (1093800)

- When accessing TS/TD on error, the file status is now displayed correctly.

2684719 (1093023)

- HSF records no longer contain incorrect dates when a task runs past midnight at the end of a month.

2644616 (1089363)

- Messages issued from casstop are now sent to stdout.

2643162 (1089019)

- All system abend messages are now reported to the console.

(602933)

CAS Admin Console

Back to the list

- The JES Program Path and CICS Transaction Path now accept paths of up to 4096 characters.

2665324 (1091104)

CAS Resource Manager Interface

Back to the list

- A thread synchronisation issue was causing responses to be lost intermittently. For stateful requests, this could result in lost SEPs (whereby a SEP would appear as busy even though it was not processing any work).

2686429 (1093442)

CAS Security

Back to the list

- A new user objectclass instance added to an LDAP-based external security manager now has its initial login attempts count value set correctly.

2637659 (1088656)

CAS XA Switch modules

Back to the list

- A new SQL Server XA switch module provides support for xa_recover and also handles implicit rollback by SQL Server more cleanly than previous switch modules.

  2679162 (1092481)

CASRDO

Back to the list

- Clicking **Resources > JES > Catalog** in ESMAC now opens the initial screen without showing the results of any previous searches.

  2656391 (1090454)

Compiler

Back to the list

- LOCAL-STORAGE data in nested programs now behaves as expected and as it does on the mainframe - as LOCAL-STORAGE of the main program.

  2693843 (1093746)
- A MOVE from a group item to a DBCS target that requires padding now behaves as expected.

  2692634 (1093553)
- DELETE statements that contain the END-DELETE scope terminator now compile as expected.

  2690465 (1093235)
- UNSTRING on LINKAGE SECTION data items with reference modification could sometimes give the wrong result.

  2684812 (1092998)
- Using large EXEC SQL statements no longer causes the Compiler to hang.

  2684713 (1092993)
- The ? NUMERO SIGN (U+2116) Shift-Jis FA59/8782 is now converted correctly to EBCDIC value 446e under CHARSET(EBCDIC).

  2683297 (1092823)
- MOVE figurative constant to PIC G item under CHARSET(EBCDIC) now returns the expected results.

  2683091 (1092801)
- A MOVE CORRESPONDING statement with a GLOBAL subscripted target now compiles as expected.

  2682557 (1092981)
- A program compiled with the FDCLEAR Compiler directive and containing a numeric file record now compiles as expected.

  2678050 (1092326)
- The asterisk character is now treated correctly in COPY REPLACING text under mainframe emulation.

  2676006 (1092571)
- A literal greater than 80 bytes but less than 160 bytes in length and containing non-ASCII characters will now compile as expected with a mainframe dialect.

  2670083 (1091560)
- Programs that contain EXEC INCLUDE statements inserted by a preprocessor now debug as expected.

  2661838 (1091416)
- ISO2002 and SNI table VALUE syntax is now working as expected for multi-dimensional tables that are not directly nested within each other.

  2651916 (1089808)

- The Compiler error message 62 (COBCH0062) has been clarified by changing "Nested COPY replacement not supported" to "Nested COPY replacement causes termination of parent COPY replacement".

  (599823)
- The SQL TYPE DBCLOB(n) now creates the correct COBOL record structure.

  (599679)

Compiler ECM Support

Back to the list

- The SQL(CHECK) option no longer incorrectly affects the setting of the unrelated NCG option 'CHECK'.

  2685791 (1093351)

Cobdebug

Back to the list

- When stepping through a program that has a watchpoint set in it, all statements are now being stepped correctly.

  2664045 (1091500)

Documentation

Back to the list

- You may now specify an SSL-enabled listener when submitting jobs via CASSUB. You achieve this by using the tcpssl protocol on the /s or -s switch.

  2671020 (1091619)
- A compiler directive INIT-BY-TYPE has been provided to allow initialization of each data type to a sensible value for that type.

  2650462 (1091658)
- The INITIALIZE verb now supports multiple categories in a single REPLACING clause.
- Variable length record files that are 4 bytes or smaller are padded to 8 bytes.

  2537147 (1081777)

ES Monitor/Control (ESMAC)

Back to the list

- In the ESMAC (casrdo45) page, there is now provision to filter and list the members of a particular PDS. The filter text is PDSNAME(*). The PDSNAME should be the complete name of the PDS, and cannot contain any wildcards.

  2500753 (1078391)

File Handling - External File Handler

Back to the list

- When using the RMFM File Handler, a file status '05' is returned when executing a DELETE FILE statement, if appropriate. This emulates the behavior of the RM/COBOL run-time.

  2685220 (1093089)
- A rollback recovery of a REWRITE where the record size was being reduced was producing incorrect results.

  2685069 (1093085)

- When a DD name is associated with several concatenated data sets of different charsets, the returned data has the charset encoding of the first data set. However, if the first data set is LSEQ, the returned data has the charset encoding of the application program.

  2677941 (1092434)
- cobfhrepro2 now produces the correct output for FCD2.

  2664465 (1090972)
- A new environment variable, STRICTVSAM, has been introduced. When it is set to ON and under a mainframe emulation, a file status of 37 is returned when you open an existing VSAM file for OUTPUT and the file has or previously had some data written to it, or if the file format is different from the file on disk. The default for this variable is OFF.

  2660766 (1090639)
- When reading concatenated datasets, each dataset in concatenation must use the same RECFM, either all FB or all VB.

  2654517 (1091793)
- The FOLDER section in a file handler configuration file now supports relative paths.

  2653787 (1090290)
- Btrieve files are now supported, using the xfh2btr call conversion module, for native COBOL, running in a Windows environment.

  2598434 (1086466)
- 64-bit fileshare clients would fail to connect if any cci configurations settings were used.

File Handling - Fileshare

Back to the list

- The Escape character was not being honoured for filenames passed to FSVIEW which caused filenames containing $ to be interpreted as environment variables.

  2660207 (1093021)
- MFJSORT now correctly displays the file status of a queried VSAM file, rather than a generic error message, when the file being queried returns a non-zero file status.

  2589273 (1092107)

HCO for Microsoft SQL Server

Back to the list

- The NOSTMTCACHE SQL compiler directive option is invalid and no longer available when setting SQL Preprocessor options from the IDE.

  2694876 (1093861)
- OpenESQL returned an error when a FETCH had more output host variables than the number of available result columns; OpenESQL now ignores excess columns, resulting in improved compatibility with DB2.

  2694548 (1093840)
- Previously, a problem occurred with DB2 YEAR() function when taking date duration or timestamp duration as argument with the directive SQL(DIALECT=MAINFRAME).

  2683713 (1092874)
- Using FETCH OR SELECT INTO statements that have more output host variables than the number of columns in the result no longer results in errors.

  2676276 (1092708)
- The SPD generator did not honor the EXTERNAL NAME option correctly during the generation of the stored procedure wrapper.

2659338 (1090674)

- HCOSS now emulates mainframe SET CURRENT SQLID and SET CURRENT SCHEMA statements.

2507765 (1078735)

Interface Mapping Toolkit General

Back to the list

- RESP condition code information is now available to COMMAREA Web Service clients when EXEC CICS LINK errors occur.

2671956 (1093056)

- The Driver Program name of a COMMAREA Service Interface cannot be the same as an operation's program name. Service Interface Validation now performs a check for this.

2669112 (1091799)

JVM - Compiler

Back to the list

- The statement ACCEPT operand FROM DATE-ISO4 now works correctly in .NET and JVM COBOL.

2681556 (1092861)

- When compiling for JVM COBOL, COMPUTE statements within a large perform range, where the arithmetic expression involves division by a power of 10 now produces the expected results.

2680641 (1092792)

- A new Compiler directive has been introduced to control how a method that has an array as its last parameter can be called. When ILPARAMS is set (which is the default), you can call the method using a list of items of the same array element type, instead of specifying a single array. When ILPARAMS is not set, you can only specify a list of items if the target method has the PARAMS attribute. Previous compiler versions allowed the use of a list even when the method did not have the PARAMS attribute, which is equivalent to the current default behavior.

JVM - RTS

Back to the list

- Fixed an error in arithmetic statements in JVM COBOL where the target is a comp-2 item.

2691797 (1093424)

LE370 Support

Back to the list

- LE370 parameters that continue on the next line are no longer flagged.

2681691 (1092669)

- TSO ALLOCATE command emulation now supports the use of "F B".

2668742 (1091453)

- An unsupported LE option in the code no longer invalidates the options that follow.

2668740 (1091425)

- A fault that caused the data received by an EBCDIC program when a 'READ from SYSIN' was performed to be in ASCII format has been corrected.

2657391 (1090401)

- CEE3PRM now successfully retrieves the parm value to the calling program.

2654879 (1090140)

MDSA API for CAS

Back to the list

- If an enterprise server instance is started by an Enterprise Server user account that has execute privilege but not update privilege for that server, you now receive an INSUFFICIENT_ACCESS error when the server starts.

  2664445 (1091238)

MF Communications Server

Back to the list

- When using casout to get job information, sometimes you could receive an error and the output was trucated.

  2693283 (1093638)
- An issue where terminating 3270 sessions would result in high CPU usage in the MFCS process has been fixed.

  2682179 (1092886)
- The mfpackage utility for removing deployed services from Enterprise Server is now included with Micro Focus Visual COBOL Development Hub.

  2675212 (1092127)
- In version 2.2 of this product, the received data was missing from the trace messages for CTG and ISC conversations. This has now been fixed.

  2674286 (1091971)
- Some of the Enterprise Server functions for informing running enterprise server of security updates and for retrieving the list of printers available on the server system were broken in Enterprise Developer 2.2. This has now been fixed.

  (601260)
- You no longer receive exceptions in MFCS when the data-trace option is enabled for a CTG listener.

  (601465)

MF Directory Server

Back to the list

- When using the export and import functionality of the MFDS XML Enterprise Server configuration, XRM name and label definitions are now exported and imported correctly.

  2683510 (1092852)
- When using the export and import functionality of the MFDS XML Enterprise Server configuration, the open and close string properties of XRM resources now support the inclusion of double quotes.

  2682635 (1092777)
- On Solaris SPARC, the value of the Enterprise Server Administration GUI journal size option was being incorrectly set to zero.

  2681195 (1092638)
- When adding or editing an IMS MPR definition in the Enterprise Server Administration GUI, you can now use comma as a separator in the class field to enter multiple class definitions.

  2676449 (1092164)
- The mfds export and import command line options -x and -g XML now also support exporting and importing enterprise server script configuration information.

  2668554 (1091412)

- XML import in the MFDS no longer fails if the XML source code contains long paths.

  2668553 (1091409)
- When using the Enterprise Server Administration to edit the properties of JES Initiators, JES Printers, IMS MPRs and XRMs, the GUI now rejects duplicate names.

  2668020 (1091336)
- Session cookies in the browsers for the Enterprise Server Administration GUI now use the HttpOnly flag for additional security.

  2666975 (1091258)
- The browser auto-complete feature is now disabled for the password fields in the Enterprise Server Administration GUI.

  2666975 (1091260)
- If the Enterprise Server Administration HTML GUI is in "restricted access" state, a logged on user now needs to have "administer user" levels permission to see the "Display" options in the LHS of the GUI. This includes the "Directories", "Statistics", "Sessions" and "Journal" menu options. The "administer user" option is available by default to any member of the #DSAdmin MFDS user group. In MLDAP ESM security, this permission is defined by Update, Add or Delete ACE permissions against the "User Administration" resource in the "Enterprise Server Administration" resource class under "Enterprise Server Resources".

  2663991 (1090934)
- When exporting the Enterprise Server configuration in XML format with the "mfds -x" command line option, the MSS ISC and CTG listener information was not formatted correctly, which resulted in an incorrect behavior when you reimported the XML configuration.

  2651735 (1090147)
- When you use the Enterprise Server Administration HTML GUI to create a user group, the following characters are no longer allowed in name: '< >', ';', '"' and '&'.

MF Server Administrator (GUI)

Back to the list

- When trying to change a password from the Enterprise Server Administration HTML logon page, additional checks are made before reporting the success or failure of the request.

  2659582 (1090525)
- The execution scripts configured for an enterprise server instance can now use the credentials specified on the Start\Stop page of the server in Enterprise Server Administration. For example, to use the specified credentials to start an enterprise server instance, you need a script with the following command:

  - On Windows:
    ```
    casstart /r%ES_SERVER% /u%TXUOPERATOR% /p%TXPOPERATOR%
    ```
  - On UNIX:
    ```
    $ES_SERVER, $TXUOPERATOR
    ```

  Where:

  - TXUOPERATOR resolves to the user id.
  - TXPOPERATOR resolves to the password.

  After the enterprise server instance uses these environment variables, they are reset to blank and are no longer available to query.

  2599100 (1086661)

MFIO

Back to the list

- MFGENER now works with the server using FCD3 protocol.

  2676130 (1092134)
- The comments in the MFAVTAM sample member have been updated.

  2674286 (1091976)
- SM2 no longer segfaults when a member has been deleted on the mainframe.

Micro Focus Heartbleed Update

Back to the list

The OpenSSL library used in this product has been updated to version 1.0.1g to fix the "Heartbleed" vulnerability with TLS heartbeat requests.

NCG

Back to the list

- An error could occur at generate time for programs with calls to INTRINSIC functions that had multiple ALL subscript parameters.

  2695026 (1093885)
- An issue in cob which caused a core dump when all entry points in the main program were invalid has been fixed.

  2663974 (1090927)
- An issue has been resolved where the debugger would not step into the code when a PERFORM statement is the last statement in a WHEN branch of an EVALUATE statement.

Run-Time System

Back to the list

- When a container end event is received, all external files that are open in the container now close correctly.

  2513669 (1079282)

Setup Issues (UNIX)

Back to the list

- A problem with the installer where it was not performing a check for whether libstdc++ is installed has been fixed. You no longer receive an error "CASCD0144S SEP 00002 for ES ESDEMO exited with value 00127" when trying to start 32-bit enterprise servers.

  2672995 (1092055)

SQL: COBSQL

Back to the list

- COBSQL Pro*COBOL error messages displayed only up to 80 characters.

  2681983 (1092788)
- Previously, commented-out END-EXEC statements were causing a Compiler error. COBSQL now ignores such statements.

  2680341 (1092533)

- The COBSQL precompiler was updated so it does not attempt conversion of source lines containing the continuation character.

  2663986 (1090930)

SQL: DB2 ECM

Back to the list

- When a CREATE TABLE statement contained a PARTITION parameter, the HCO DDL processor sometimes generated invalid DDL.

  2682214 (1092725)
- A new option (SAVEDDL) is available in the HCO DDL processor. With this option set, any DDL converted from the input DDL file is saved and not executed. The DDL processor now supports specifying the IN <tablespace> and COMPRESS <option> parameters but not modifying them.

  2673448 (1091907)
- Previously, the HCO IMPORT tool could go into a loop if the LOB column was in the import data set.

  2673443 (1091887)
- When compiling on a 64-bit systems, the DB2 pre-compiler incorrectly generated an error "DB0121 Package name is too long."

  2673259 (1091920)
- The HCO DDL processor now accepts column names greater than 18 characters. Previously, in this situation, you received SQLCODE error -205 when the DDL was processed.

  2673085 (1091829)
- The HCO IMPORT tool now supports a new parameter (SAVEDEL) which enables converting DSN import files to delimited format. When used with this paramter, the HCO IMPORT tool only converts the file and does not perform an actual import.

  2672865 (1091891)
- The HCO Import Data tool was not checking for invalid lengths passed for VARCHAR column data; the tool now checks this and when an invalid length is passed, issues an error message identifying the affected column.

  2661781 (1091056)

SQL: HCO for SQL Server

Back to the list

- HCOSS now handles statements of type "SET hostVariable = CURRENT SQLID" correctly.

  2693537 (1093690)
- The HCOSS Assess Application Migration tool flagged CALL statements as errors without checking parameter directions. These CALL statements are now flagged as 'in doubt' to initiate an assessment of parameter directions.

  2685247 (1093156)
- The OpenESQL preprocessor and runtime now support AMODE(31) address pointers and swapping COMP fields in SQLDA for user-defined mainframe style SQLDAs.

  2684229 (1092978)
- COBOL stored procedures could not perform database updates when called from a SQL Server trigger.

  2680257 (1092809)
- OpenESQL and HCOSS now correctly compile statements that contain CASE expressions.

  2679336 (1092605)
- OpenESQL now supports a generic syntax for setting and rolling back to transaction save points that work with Oracle, DB2, and SQL Server.

2676145 (1092138)

- Although mainframe DB2 supports FETCH INSENSITIVE from SENSITIVE STATIC cursors, which has a SQL Server equivalent KEYSET cursor, SQL Server does not support FETCH INSENSITIVE from KEYSET cursor. This is a permanent limitation.

2676140 (1092137)

- OpenESQL did not support BLOB, CLOB, and DBCLOB host variables larger than 64K.

2649752 (1089622)

SQL: OpenESQL

Back to the list

- OpenESQL did not support using the DB2 VALUES INTO statement with DB2 LUW.

2694069 (1093906)

- The OpenESQL preprocessor incorrectly rejected host variable character definitions that contained x'091' characters.

2692065 (1093465)

- You can now specify SQL(NOCHECKSINGLETON) in applications that require compatibility with older products to check for unfetched rows after a singleton SELECT. In such cases, the returned SQLCODE value is zero rather than an error or a warning.

2691736 (1093420)

- The SQL(TSTAMPSEP)compiler directive could not be explicitly set to a space character, for example SQL(TSTAMPSEP=). This is now the default setting unless overridden by specifying SQL(DIALECT=MAINFRAME).

2691212 (1093364)

- In the IDE, the TSTAMPSEP directive was not listed as an OpenESQL compiler directive option.

2685702 (1093116)

- When SQL(NODETECTDATE) is set after SQL(DIALECT=MAINFRAME), HCOSS does not attempt to convert date, time or timestamp literals in static or dynamic SQL statements.

2685422 (1093615)

- DB2 LUW applications could not use DECLARE GLOBAL TEMPORARY TABLE statements that were not syntactically valid for DB2 z/OS.

2685219 (1093346)

- The sqlda.cpy copybook could not be compiled using the ENTCOBOL mainframe dialect.

2682522 (1092825)

- A new XA switch module is now available that supports XA recovery.

2680297 (1092528)

- Previously, you would receive error COBCH002 when SQL(NOPRE) was specified because the ODBC precompiler would try to generate code using a variable which was not defined.

2679267 (1092438)

- The OpenESQL pre-compiler generated code that swap COMP host variables incorrectly if the SQL statement got an SQL runtime error.

2677606 (1093013)

- The OpenESQL precompiler sometimes incorrectly generated swap code for COMP host variables if they were used for both input and output in same SQL statement which resulted in SQLCODE of +100 being returned.

2675122 (1092454)

- A problem with SQL(CHECK) no longer occurrs when using binary host variables.

2673281 (1091832)

- A problem with nested select queries in ESQL 'select into' statements has been fixed.

2672519 (1091768)

- Previously, an incorrect code was generated for an INSERT statement that used an indicator variable array when DBMAN=ADO was set.

2671938 (1091715)

- The support for EXEC SQL GET DIAGNOSTICS has been extended to include DB2_ROW_NUMBER, ROW_NUMBER and COLUMN_NUMBER as diagnostic items that can be retrieved by an application.

2670955 (1091611)

- The OpenESQL preprocessor could sometimes improperly decode DBCS host variable characters which resulted in receiving an "ES0109 Invalid data name" message.

2670725 (1091594)

- The OpenESQL pre-compiler incorrectly changed the underscore character (_) to a dash character (-) in an EXEC SQL WHENEVER statement.

2670723 (1091593)

- Dynamic SQL statements were not releasing JDBC cursors.

2670548 (1091585)

- OpenESQL for JVM COBOL prevented type byte[] host variables from being used.

2667023 (1091240)

- The SQL Directives information available within the Visual Studio and Eclipse IDEs contained an error regarding the available options for the XDB(DATE) and XDB(TIME) directives.

2666213 (1091185)

- Some issues relating to the use of PIC G /PIC N DISPLAY-1 and some DBCS host variables have been resolved.
- When using Data Direct ODBC drivers, PIC N NATIONAL host variables always uses UTF-16 instead of UTF-8 which previously happened on some platforms.
- Some problems with using Data Direct's ODBC driver for Microsoft SQL Server have been fixed.

UNIX Cob

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- Cob now checks for duplicate symbols defined in objects that are passed to cob for linking.

2651626 (1089779)

- Previously, ccbl was leaving behind a file named cobxi* in the $TMPDIR or /var/tmp directories.

Web Service Client

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- Support for nested COUNT IN clauses has been added to the generated Web Service Console Client. Empty and unused array fields will no longer be returned in the client output.

2278428 (1066547)

XDB Server

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- MFDB2UNL.CBL now allows the use of semi-colons within SQL statements.

2661513 (1090755)

XDB: Problems not classed above

- Previously, TESTCOVER configuration could cause spurious errors in XDB utilities.

  2677742 (1092299)

XML Syntax Support Preprocessor

- PREXML now handles conditional compilation correctly.

  2665552 (1091113)
- An XML file being opened for input is now closed correctly.

  2664760 (1091006)

XML Syntax Support Runtime

- The XML run-time system now handles non-US EBCDIC characters correctly.

  2665518 (1091086)

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*. 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.

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.

On UNIX, you can use the Micro Focus UNIX Support Scan Utility, `mfsupport`, to create a log file that contains the details about your environment, product, and settings. The `mfsupport` script is stored in `$COBDIR/bin`.

To run `mfsupport`:

1. Start a UNIX shell.
2. Set COBDIR to the product with issues.
3. Execute `mfsupport` from a directory where you have write permissions.

   This creates a log file, `mfpoll.txt`, in that directory.
4. When the script finishes, send the `mfpoll.txt` file to your Micro Focus SupportLine representative.

Note:

If COBDIR is set to a location that does not contain `etc/cobver`, the script outputs the contents of `/opt/microfocus/logs/MicroFocusProductRegistry.dat` which keeps a list of the installed Micro Focus products.

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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