



Micro Focus Visual COBOL 2.2 for Visual Studio 2013

A large, flowing, blue ribbon graphic that curves and loops across the lower half of the page, starting from the right side and moving towards the left.

Release Notes

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Micro Focus Visual COBOL 2.2 for Visual Studio 2013 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.



Important: Application executables that were compiled using earlier Micro Focus products must be recompiled from the sources using Visual COBOL.

Installation

System Requirements

Hardware Requirements

Visual COBOL has the following requirements in addition to the requirements of Microsoft Visual Studio. See the Visual Studio documentation for details of the Microsoft requirements.

The disk space requirements are:

Platform	Visual COBOL	Sentinel RMS License Manager
x86 Windows platforms	380MB	35MB
x64 Windows platforms	500MB	35MB

 **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

 **Note:** If you are using Visual COBOL on a 64-bit operating system, you can produce either 32-bit or 64-bit applications.

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:**

- Visual COBOL for Visual Studio 2013 is not supported on versions of Windows earlier than Windows 7.

Software Requirements

Visual Studio IDE

This product requires any of the following versions of Visual Studio:

- A full version of Microsoft Visual Studio 2013 (Premium, Professional, or Ultimate), or the Microsoft Visual Studio Integrated Shell.

 **Note:**

- Microsoft Visual Studio Express Edition is not supported.
 - You can download the Visual Studio Integrated Shell from the [Microsoft Download Center](#). If you choose to install the Shell, ensure you run the installer to complete the installation - run `vsintshell.enu.exe` from the location where you installed the download.
 - The Visual Studio 2013 Connected IDE experience is not available with the 2013 Shell.
- If you do not have any of these versions of Visual Studio installed, the setup file will install the Visual Studio Integrated Shell.

- Microsoft Windows SDK is required if you are using the Visual Studio Shell. See the [Microsoft Download Center](#) and search for Windows SDK.
- Microsoft .NET Framework 4.5.1. This is included with Visual Studio 2013.



Note:

- Visual Studio 2010 Service Pack 1 is required if you are using Visual COBOL for Visual Studio 2010 and Visual COBOL for Visual Studio 2013 on the same machine. If you are connected to the Internet, the setup file downloads and installs Visual Studio 2010 Service Pack 1 automatically. If you do not have Internet access, you need to download Visual Studio 2010 Service Pack 1 on a machine that has Internet connection, and then copy the installer to your machine.
- In addition, when building a native COBOL project that contains resources you must replace the `cvtres.exe` in the `bin` and `bin64` directories of your Visual COBOL installation with the version of the file which gets installed with Visual Studio 2010 SP1. You can download Service Pack 1 for Visual Studio 2010 from the [Microsoft Download Center](#).

Internet Explorer 10

Internet Explorer 10 (IE 10) is required by the installation of Visual Studio 2013. If you are installing Visual COBOL on a machine that has no Visual Studio 2013 installed, the setup file installs Visual Studio 2013 Shell provided that IE 10 is installed beforehand. You can download IE 10 from [Microsoft's Web site](#).

IIS Express

IIS Express is required if you want to use the Web development tools. You can download IIS Express from the [Microsoft Download Center](#).

Other Requirements



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. 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

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.

Windows Forms

- Microsoft Internet Information Service (IIS) is also required for generating Windows Forms test clients.

XML Extensions

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

Application server support for JVM COBOL



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	1.6.027	Servlets 2.5
JBoss 6.1	1.6.027	Servlets 2.5
WebLogic 12.1.1	1.6.027	Servlets 2.5
WebLogic 12.1.1 on AIX 6.1	1.6.0 SR10 FP1	Servlets 2.5
WebSphere 8.5	1.6.027	Servlets 2.5
WebSphere 8.5 on AIX 6.1	1.6.0 SR10 FP1	Servlets 2.5

Installing Visual COBOL for Visual Studio

Installation restrictions and requirements

Before starting the installation you should consider the following:

- Visual COBOL for Visual Studio 2013 cannot coexist with Visual COBOL for Visual Studio 2010 or Visual COBOL for Visual Studio 2012 on the same machine.
- Visual COBOL and Enterprise Developer do not co-exist on the same machine.
- If, when you install Visual COBOL for Visual Studio , the machine does not have Microsoft Visual C++ Redistributable Runtime already installed, it is installed as required by Visual COBOL. The installation of Microsoft Visual C++ Redistributable Runtime adds a number of .dll files, without digital signatures, into the `winsxs` directory.
- If, when you install Visual COBOL for Visual Studio 2013, the machine does not have Microsoft Visual C++ 2013 Redistributable Runtime already installed, it is installed as required by Visual COBOL. The installation of Microsoft Visual C++ 2013 Redistributable Runtime adds a number of .dll files, without digital signatures, into the `winsxs` directory.
- If you are installing this as an upgrade, make sure that none of the product files are in use when you start the installation. Also, the Visual Studio Help Viewer must not be opened.
- 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.

Downloading the Product

You can download Visual COBOL for Visual Studio 2013 from the Micro Focus SupportLine Web site and from the *Product Updates* section.

Installing



Note:

- Before installing, check *Installation Restrictions and Requirements*.
- This version of the product is a full install.

To install this product:

1. Run the `vcvs2013_22.exe` file and follow the wizard instructions to install the prerequisite software and the product.



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 Visual Studio and 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 Visual COBOL but you can install it if you wish.

Visual COBOL Installation Options

To install Visual COBOL you run `vcvs2013_22.exe` which contains a number of product `.msi` files (Windows Installer packages). When run, `vcvs2013_22.exe` performs some initial system checks then sequentially installs the `.msi` files.

`vcvs2013_22.exe` can take a number of parameters, enabling you to specify a number of different types of installation:

- Standard Installation

Format:

```
vcvs2013_22.exe
```

Summary:

Full installation including License Manager and Visual COBOL. During installation you can specify options including the location to which the components are installed.

- Non-interactive Installation

Format:

```
vcvs2013_22.exe /passive
```

Summary:

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

- Silent Installation

Format:

```
vcvs2013_22.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:

```
vcvs2013_22.exe /q InstallFolder=d:\otherdirectory
```

Summary:

Full installation, but the components are installed non-interactively with no user interface, and Visual COBOL is installed to `d:\otherdirectory`.

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

```
vcvs2013_22.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.

Microsoft Terminal Server

You can use this product with Microsoft Terminal Server but note that a separate end-user license is required for each user who accesses it, even if the product is running on a single machine. See your *End User License Agreement*.

Microsoft Terminal Server is an environment for running multiple instances of a single-user product. It is not a platform where a single-user product can be made to perform as a multi-user product.

To install onto a terminal server:

- Log on to the physical terminal server with a user ID that has administrator privileges.
- Use **Control Panel > Programs** and follow the instructions on the screen.

When you install the product on Microsoft Terminal Server or similar terminal software, do not execute more than one installation at the same time.

When you install Microsoft Terminal server, you must assign a unique port address to each user. Then the very first time that each user logs into Visual COBOL and starts the terminal server, they should:

1. Select **Options > Project > Port address for Web Server**.
2. Type in the assigned port address.

This is necessary because the default port address for the Web server is 80. Once this has been allocated to the first user, when the next user attempts to start the Web server, the software recognizes that this port is in use and rejects the attempt. Consequently each user requires an individual port address.

Installing from a Server

There are two methods for installing this product on users' machines using a server. You can:

- Copy the product onto the server and then use Setup under control of a third-party software distribution package, such as Microsoft's Systems Management Server (SMS), to install the product onto multiple users' machines.

This method of installation and the associated file are not supported by Micro Focus. They are provided on an "as is" basis and have not been tested in any form. You can use them at your own discretion.

- Install onto the server. Then users run Setup to install from the server onto their own machines.

Both methods give you control of what options the user can install and mean you do not have to send the installation media to every user, as they install from the server instead.

After Installing

You are now ready to run Visual COBOL. From the Windows taskbar click **Start > All Programs > Micro Focus Visual COBOL > Visual COBOL for Visual Studio nnnn**.



Note: For applications created with earlier Micro Focus products or earlier versions of Visual COBOL, note the following:

Database Access	Managed applications using SQL(DBMAN=ODBC) that were compiled in Visual COBOL 2.1 Update 1 must be recompiled in Visual COBOL 2.2.
Existing Applications	Application executables that were compiled using earlier Micro Focus products must be recompiled from the sources using Visual COBOL.

Please refer to the *Start Here* and *Product Information* sections in your product Help. Here, you will find information on getting started including tutorials and demonstration programs.



Note:

- To view the help in Visual Studio 2013, ensure that the Visual Studio Help Library is pointing to local help. From the Visual Studio menu click **Help > Set Help Preferences > Launch in Help Browser**.
- For full details of the Visual Studio 2013 Help system, see the locally installed Microsoft Help Viewer 2.1 Help, which is available from Help menu in the IDE.

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**.

Uninstalling

Windows

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.



Note: The installer creates separate installations for Micro Focus Visual COBOL and Micro Focus License Administration. Uninstalling only Visual COBOL 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.

Some registry entries are not removed by the uninstallation process and you need to manually delete them.

The following folders might not be removed:

- The *Micro Focus Product Name* folder in the Start menu - you can delete it manually.
- %systemdrive%\Users\Public\Documents\Micro Focus - includes the binaries and the log files of the samples which you have built.
- %ProgramData%\Micro Focus - includes some data files used by the Micro Focus licensing system.
- %Program Files%\Micro Focus - you can delete it manually.

Licensing Information

Visual COBOL 2.2 for Visual Studio 2013 comes with a 90-day trial license, after which you will not be able to use the product.

New Features in Visual COBOL 2.2 for Visual Studio 2013

Integration with Visual Studio 2013

Visual COBOL provides support for the new features of Visual Studio 2013 and the Visual Studio 2013 Integrated Shell, including:

Compatibility (Project Round-Tripping)	Visual COBOL supports the Visual Studio project round-tripping feature which enables you to work with COBOL projects in Visual Studio 2010 SP1, Visual Studio 2012 or in Visual Studio 2013 without the need to upgrade the project file.
.NET Framework 4.5.1 Compatibility	Provides support for creating managed COBOL applications that target version 4.5.1 of the .NET Framework.
Scroll Bar	Visual COBOL supports the new and enhanced scroll bar in Visual Studio 2013.
Visual Studio 2013 Themes	Visual COBOL conforms to the new look and feel of Visual Studio 2013.
Microsoft Help Viewer 2.1	Provides support for the Micro Focus Help in Microsoft Help Viewer 2.1.



Note: The Visual Studio 2013 features CodeLens (Code Information Indicators) and Peek Definition are not supported in COBOL.

Expanded Copybook View - Technical Preview

The COBOL editor supports showing the contents of copybooks inline at the place where they are referenced in a program or a copybook. Features include:

- You can edit the code of copybooks in the expanded copybook view (except for copybooks shown with replaced values).
- For copybooks referenced using a COPY... REPLACING statement, you can show either the original contents of the copybook file or show its contents with replaced values. The expanded copybook view with replaced values is read-only which is indicated by a yellow background color.



Note: You can configure the background color of the read-only view from **Tools > Options > Environment > Fonts and Colors**, and changing the background color for the **COBOL Read-Only Background** item.

- Go To Definition, Find All References, navigation using the drop-down types and members, and navigating to an error from the Error List window all find results or locate information in the expanded copybook view.



Note: The following limitations apply:

- IntelliSense and code snippets are not supported when editing a copybook in expanded copybook view.
- In expanded copybook view, it is not possible to edit copybooks referenced through a COPY... REPLACING statement when the expanded copybook view shows the replaced values. In this case, the expanded copybook view is read-only.
- Outlining is not supported in the expanded copybook view.
- Navigating to items in the expanded copybook view is not supported from the Class View or using the Navigate To option.

- References to file locations in the output windows such as pointing to the build output, or in the results received by Find in Files, Quick Browse (COBOL Source Information), do not point to items in expanded copybook view.
- It is not possible to step in the expanded copybook view while debugging.
- The expanded copybook view supports breakpoints setting but the Breakpoint icon does not appear in it but only in the original copybook file.

Copybook Dependencies

Solution Explorer shows a tree view of the dependencies of the COBOL programs and copybooks on copybooks in a project to help you navigate easily around the source code.

Application configuration

You can now set environment variables for when you run native projects from within the IDE from the project's properties - click **Environment** on the **Application** tab in the project properties.

COBOL editor enhancements

Navigating in the editor is now more similar to the editor navigation in Net Express. You can configure things like word wrap and indentation, the movement of the cursor using the **Home** and **End** keys, the style of the ruler and the colors of the text and the margins:

Smart editing mode	The default mode in the editor is now Smart edit mode. It controls the word wrapping and the indentation in the different COBOL areas. You can configure the Smart edit mode from the Tools > Options > Text Editor > Micro Focus COBOL > Margins page. To toggle the mode, click  in the COBOL toolbar.
Home and End keys navigation	You can configure how the Home and End keys move the cursor in the editor on the Tools > Options > Text Editor > Micro Focus COBOL > Margins page. To toggle the mode, click  in the COBOL toolbar.
Configuring the ruler	You can specify whether to display the horizontal ruler in the editor and also choose its style, a default style or a mainframe style for which the ruler indicates COBOL area A/B, from Tools > Options > Text Editor > Micro Focus COBOL > Margins and check Show ruler .

COBOL Source Information (CSI)

COBOL Source Information (CSI) provides a quick and easy way of providing you with information about your program when you are working on it. You enter a query in the **Quick Browse** dialog box and CSI returns the results of the query in the Output window's COBOL Source Information tab.

Compiler directives

The following Compiler directives are new:

ACU-UNDERSCORE	This directive treats underscores in COBOL words as hyphens.
ILSHOWPERFORMOVERLAP	This managed COBOL-only directive generates a warning when an overlapping PERFORM range is detected in the program.
ILEXPONENTIATION	This managed COBOL-only directive enables you to optimize exponential arithmetic operations by specifying the calculation method used.
EXITPROGRAM	This directive determines how the EXIT PROGRAM statement is executed.

The following Compiler directives have changed:

CHANGE-MESSAGE The scope of this directive has been widened to allow you to change the severity of different types of error messages, not just syntax checking messages.

DIALECT"RM" DIALECT"RM" now sets PERFORM-TYPE"RM". If you recompile an application that uses DIALECT"RM", the behavior may change for nested PERFORM statements. If that is the case, explicitly set PERFORM-TYPE"MF" after DIALECT"RM" to continue with the previous behavior.

HIDE-MESSAGE The scope of this directive has been widened to allow you to hide different types of error messages, not just syntax checking messages.

PRESERVECASE This directive now defaults to PRESERVECASE when compiling native COBOL; managed COBOL compilation already defaults to PRESERVECASE. This results in externally visible identifiers preserving their case instead of being converted to uppercase.

Consolidated Tracing Facility

The following changes have been made to the Consolidated Tracing Facility (CTF):

Emitter properties and variables

The following support has been added to existing emitters.

Properties

The following property has been added to the BINFILE emitter:

Property	Description
RunUnitID	Controls whether the RunUnit information is included in the trace.

Variables

Four new pseudo-variables for the FILE property have been added to the BINFILE and TEXTFILE emitters:

pseudo-variable	Description
\$(PLATFORM)	A platform specific constant, useful when two run-time systems are in the same process, and you require separate trace files
\$(RUNUNIT)	A unique number that represents the managed RunUnit ID
\$(RUNUNIT_SESSIONNAME)	The session name passed to the managed RunUnit
\$(RUNUNIT_GUID)	The globally unique identifier associated with the managed RunUnit

Converting Net Express projects

Conversion of Net Express projects has been enhanced. You now use the Visual Studio Conversion Wizard to import and convert Net Express projects (.app files) to Visual Studio solutions.

Debugging

Displaying debug information for You can set the DEBUG constant for managed COBOL projects on the **COBOL** tab in the project properties. This enables you to use the System.Diagnostics.Debug class in your applications to ensure they write

managed applications diagnostic information in the Output window for projects compiled for Debug but not for projects compiled for Release.

Changing the display format for individual items in the Watch window It is now possible to change the display format between hexadecimal (hex) and decimal for individual items in COBOL projects in the Watch window. To do this, click a row, press **F2**, and type: *Variable,h* or *Variable,x* to always display the values in hexadecimal format; *Variable,d* to always display the values of variables in decimal format, and of strings - as text.

Documentation

The following guides are now available, among other updates to the product help for this release:

Introduction to Object-Oriented Programming for COBOL developers A guide that provides a basic introduction to Object-Oriented Programming (OOP) for COBOL developers, *An Introduction to Object-Oriented Programming for COBOL Developers*, with examples is now available from the *Product Documentation* section on the Micro Focus SupportLine Web site - [click here to download it](#).

A walkthrough on upgrading to Visual COBOL A new section in the product help, *Upgrading from Net Express to Visual COBOL for Visual Studio 2013*, provides guidance on how to move existing applications either developed or debugged in the Net Express into for Visual Studio 2013 and the Visual Studio IDE .

File Handling

New features include:

- The DATEDIFF function is now supported as part of the DFSORT emulation. There are some limitations of its use in Visual COBOL.
- Converting and editing Vision and RM/COBOL indexed data files using the Data File tools is now supported.
- Access to data files (either sequential or indexed) through AcuServer is now supported.
- Access to Vision and RM/COBOL indexed data files through Enterprise Server is now supported.

Grouping files in virtual folders in Solution Explorer

Visual COBOL now provides a Virtual View of a project within Solution Explorer. In the Virtual View you use virtual folders to improve navigation by logically grouping the files that make up the project. You can also create your own virtual folders to group files of your choice (a file can only belong to one virtual folder). The files can be of different file types.

Managed COBOL

Procedural Multi-Output Project type A new .NET managed project template, Procedural Multi-Output Project, is now available. The project compiles procedural programs to individual managed assemblies or executables as opposed to the standard managed project templates that produce a single assembly. This project type is useful when you are moving existing procedural applications that consist of multiple programs to Visual COBOL and to managed code. When calling a subprogram, the COBOL run-time system can locate the assembly using the name of the called program which will match the assembly file name. In this case, the assembly does not have to be preloaded. See *Types of COBOL Project Templates* for more details and for a list of the limitations of this project type.

Searching in copybooks

The search in copybook files has been enhanced. Visual Studio's **Find in Files** now enables you to perform a search in all copybooks - the ones that are part of the project, and in the ones that are found in

the paths defined on the **Dependency Paths** tab in the project's properties. To do so, set the search scope in the **Find and Replace** dialog to **COBOL Project Copybook Paths**.

SQL

EXEC SQL GET DIAGNOSTICS Statement	Enables you to get diagnostic information for the last OpenESQL statement executed.
OPTION compiler directive option	New parameters have been added to handle additional host variable types.

WCF REST Service Application projects

Visual COBOL now provides a project template for creating COBOL WCF REST Application services. The requirements are - Visual Studio Professional, Premium, or Ultimate (Visual Studio Shell does not support WCF applications); and versions of the .NET Framework 4.0 and later. For more information about WCF and REST, check Microsoft's MSDN.

Known Issues

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

In addition, note the following:

AcuCOBOL File Handler	When using an interface of ACUFH other than MSSQL, you may experience a file operation delay when the interface fails to connect to a database. This failed connection also results in a memory leak. Set the environment variable MSSQL_DETACH to 1 to avoid both issues.
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.
Compiler	When running with Java 1.7, if your class contains a static method called 'main' with a single string array parameter, in order for this class to be executable from the command line that main method should not have a returning item.
ICETOOL Emulation	ICETOOL emulation for managed code is not available in this release.
Resource Adapters	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).

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.

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.

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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