Micro Focus Visual COBOL Development Hub 7.0

Release Notes

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Contents

Visual COBOL Development Hub 7.0 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.
- Check the *Product Documentation* section of the *Micro Focus Customer Support Documentation Web site* for any updates to the documentation which might have been uploaded.

Product Overview

Visual COBOL Development Hub (Development Hub) is a part of the Visual COBOL product portfolio from Micro Focus which includes testing and developer productivity tools.

Development Hub is a companion of Visual COBOL for Eclipse. It enables the developers to use intelligent, integrated development tools in Eclipse while keeping the application source on a UNIX or Linux production-like server with access to middleware and test data. Developers get the power of Eclipse on their Windows or Linux desktop and can test their applications in a realistic environment without duplicating source code or emulating server behavior. With Visual COBOL, Visual COBOL Development Hub can be used for distributed development of COBOL for JVM applications.

What's New

Enhancements are available in the following areas:

Micro Focus COBOL Extension for Visual Studio Code

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The new Micro Focus COBOL extension for Visual Studio Code is available on the Microsoft Visual Studio Marketplace. This provides edit, compile and debug support for Visual COBOL and Enterprise Developer users in Visual Studio Code.

Note: The new Micro Focus COBOL extension is not included with the Visual COBOL installer.

.NET Core Support

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Support has been added for creating, building and running .NET Core projects using the `dotnet` command.

This functionality is available in the following products:

- Visual COBOL Development Hub

COBOL Language

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The following enhancements have been made to the Micro Focus COBOL language:

- **JVM COBOL data type to hold strings of utf-8 characters** - support is now available in JVM COBOL for the PIC U data type. This was already available for native COBOL, to support its introduction by IBM in Enterprise COBOL version 6.3.
- The DYNAMIC LENGTH clause, which enables a data item to vary in length at run time, is supported. Again, this is in response to its introduction by IBM in Enterprise COBOL version 6.3.

- The following date-format-checking intrinsic functions have been added: TEST-DATE-YYYYMMDD and TEST-DAY-YYYYDDD.

Code Set Support

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The following enhancements have been made to the integrated code set translation support:

- Arabic support for Enterprise Server applications is available.

  If you are building Arabic support into Enterprise Server applications, your terminal emulator must support the Arabic EBCDIC 420 code page.

  Support is added by building your applications and configuring your enterprise server regions with the MFCODESET variable set to the supported country code (0420). Your product's in-built code set translation utility performs translations between the ASCII 1256 Arabic code page on your enterprise server region, and a terminal emulator that supports the Arabic EBCDIC 420 code page (for example, IBM's Personal Communications emulator).

  There are some considerations when working with a bi-directional language such as Arabic.

Compiler Directives

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The following Compiler directives are new in this release:

- PANVALET-INCLUDES-IN-COMMENTS - This directive controls whether ++INCLUDE statements in comments are actioned or not.
- EXECSQL-FLAG - This directive defines whether syntax reporting should emulate that of the DB2 preprocessor, the DB2 coprocessor, or to allow all syntax variations of both.
- RM-FILE-ERRORS - This directive generates run-time system errors for certain file conditions, even when a FILE STATUS clause is present; this is to emulate RM/COBOL behavior.

The following Compiler directive option has been deprecated:

- ILCLR(2) - this is as a result of deprecating support for versions 3.0 and 3.5 of the .NET Framework. Applications that have this option set will produce an E level message when compiled in this release of Visual COBOL.

Database Access - MBDT Utilities

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This release introduces:

- The SQLTUL utility, which is equivalent to the z/OS DB2 DSNTIAUL program.

  

  Attention: This feature is in Early Adopter Program (EAP) release status. We intend to provide the finalized feature in a future release. Please contact Micro Focus Customer Care if you require further clarification.

Data File Tools

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This release includes the following enhancements in the Data File Editor:

- **New Data Explorer for working with data sets** - a new Data Explorer enables you to connect to either an ESCWA service or directly to an enterprise server region to access a catalog when working with data sets in the editor.
- **Multiple record selection**- you can select multiple records and, where appropriate, can perform certain actions on more than one record at once.
- **Cut, copy, and paste functionality** - traditional cut, copy, and paste functionality (including the standard Ctrl+X, Ctrl+C, and Ctrl+V shortcuts) is now available throughout the editor.
- **New filter creation** - a new process for creating filters has been introduced. A filter consists of one or more sets of conditions, and the resulting filter can include or exclude those records selected. The previous filter process is still available, but has been marked as deprecated.
- **Remote filtering** - functionality has gone into Fileshare Server which allows filtering to occur server side when opening data sets on remote enterprise server regions. The filter process results in only those filtered records being downloaded to the data file editor client.
- **Find/replace functionality** - you can search records in a data file to identify specific strings, and then if required, replace them.

Enterprise Server

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This release includes the following enhancements:

- Multiple Network Interface support - there is improved support for multiple network interfaces in some components, including better awareness of network interfaces and control over networking. This is a partial implementation and will be enhanced in future releases.
- Extended IPv6 support - support is available in Micro Focus Directory Server (MFDS) and in the Micro Focus Communications Server (MFCS) listener for multiple IPv6 addresses.

  In release 6.0, you could only configure MFDS and MFCS listeners to listen on a single IPv6 address. In release 7.0, by default, MFDS and MFCS now listen on all configured IPv4 and IPv6 addresses, and can also be configured to listen on a combination of specific addresses.
- HTTP improvements:
  - Additional security measures for HTTP, such as security-related headers.
  - Chunking support for large HTTP messages makes it possible to retrieve very large files from Enterprise Server regions.
- Application Diagnostic Reporting for Enterprise Server - Application diagnostic reporting collects and packages a number of reports, trace, and log files into a single report file.
- Enterprise Server now supports automatic reconnection to the standby Queue manager in an Multi-Instance Queue Manager.
- The casmgr process has been optimized to improve the use of initiators when dispatching jobs across a PAC. In addition, improvements have been made to the way it manages the queue of jobs waiting to be dispatched.
- Information has been added describing the best practice and the recommended approach you should adopt when performing a Patch Update to your PAC environment.
- (This feature has been added in 7.0 Patch Update 1) New operating modes , *upgrade* and *quiesce*, have been introduced for Performance and Availability Clusters (PACs). These operating modes can be used to facilitate the installation of product updates that introduce incompatibilities between PSOR data structures. You can check for incompatibilities using the new caspac utility option CheckCompat. An upgrade mode can be set when starting the first enterprise server region in a new PAC using the new casstart utility *start-type* option *u*. This upgrade mode will prevent participating enterprise server regions from processing batch workloads as part of its normal operation, and any EXEC CICS START requests will be rejected. See *casstart* and *caspac* in your product Help for more information.

When enough enterprise server regions have been switched over to the new PAC, the old PAC can be set to operate in the quiesce mode. This prevents further batch workload and EXEC CICS START from being processed.

The new PAC can now be switched to running mode so that batch workload and EXEC CICS START are enabled for processing again.

Note: Before setting the new PAC mode to running, you must switch enough enterprise server regions to the new PAC to enable it to service the expected workload.

Enterprise Server Common Web Administration (ESCWA)

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This release offers the following improvements:

- MFDS User Interface functionality replacement - ESCWA now replaces the MFDS inside the IDE as the engine that provides access to and management of regions. ESCWA provides all the functionality that was previously available from MFDS. This release includes the following enhancements:
  - Delete all regions.
  - Session list.
  - Renew listening addresses.
- ESMAC User Interface functionality replacement - the following ESMAC features have been implemented in ESCWA:
  - Resource Filtering.
  - Millisecond support.
  - Control the scope for all changes to timeouts, trace flags, and memory strategy when applied to regions in a PAC.
  - Enable Application Diagnostic reporting.
  - Submission of local jobs from the JES Control page when CASRDO44_NEWSUB=OFF has been specified.
  - View and reply to pending ACCEPT FROM CONSOLE statements.
  - The messages after a JCL job has been submitted are now correctly JSON formatted. This page now works in ESCWA when MFJUXIT is enabled.
- Import, export, and copy regions - you can now use the UI to export and import regions in various formats, including use JSON. You can:
  - Copy regions between Directory Servers
  - Import and export regions in JSON, XML or in the `.dat` legacy format. The legacy format can be converted to a modern format.
- Mainframe Access (MFA) administration - ESCWA provides a modern Web UI and does not require you to use a separate terminal application. Features include:
  - Log in or off from MFA.
  - Change your MFA password.
  - View MFA server tasks.
  - Retrieve the XDBOUT log (Web UI).
  - Retrieve the JES spool files by DD Name (API).
  - Set the MFA and JES tracing level.
  - View the active MFA users.
  - Invalidate active user sessions.
  - View mainframe/MFA statistics.

  The MFA API library has been exposed to enable you to test and use the requests that are provided.

- Scale-Out and PAC administration - you can now:
  - Monitor Redis Sentinel and Cluster instances when used for Scale-Out Repositories.
  - Specify that all changes to timeouts, trace flags, and memory strategy can be applied to one of three options:

    Only the local region.
    All members of a PAC except the regions where local changes have been made.
    All members of a PAC.

    You can configure this in ESCWA with the **Apply Scope** field on the ES CONTROL page. Alternatively, you can use the casutl utility with the /w option.
- Multi-Network Interface Card support - ESCWA now enables you to configure Communications Servers and Listeners to listen on multiple IPv4 and IPv6 addresses. Previously, they were limited to listen on either all IPv4 addresses, or a single IPv4 or IPv6 address. Now a combination of any of the following can be used:
  - One or more specific IPv4 addresses.
  - One or more specific IPv6 addresses.
  - All IPv4 addresses.
  - All IPv6 addresses.
- A new filter field **resFilter** has been added to the following ESCWA and ESMAC resource listing modules:

  Every resource in By Type
  Every resource in By Start L
  Resource lists under Groups
  Every active resource type except Locks

  This parameter will filter the list of resources displayed by ESCWA and ESMAC. In addition, a new environment variable ES_RDO_MAX_RESOURCES has been added that enables you to specify a limit to the number of records displayed. For JSON requests, the list being truncated is indicated by the addition of the JSON property "truncated": true.

Enterprise Server Security

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This release includes the following enhancements:

- MLDAP ESM caching - the MLDAP ESM Module now implements LDAP search-result caching. This is controlled by the existing Security Manager cache settings, so that many installations will have this activated automatically. See the product Help for details.
- Vault Hashicorp support - support is available for using a Hashicorp KV2 vault server as a local or remote vault.

Library Routines

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The following library routines are new:

- CBL_GET_ERROR_INFO - enables error processing routines to establish the location of the error that occurred to cause the error processing routine to execute. This is available on a restricted range of platforms.

- CBL_CREATE_STACKDUMP - generates a stackdump file.

Licensing

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AutoPass licensing technology

In this release, Micro Focus brings in the power of the in-house Micro Focus AutoPass licensing technology alongside Sentinel RMS. AutoPass has the following additional benefits compared to Sentinel RMS:

- Usage logging which enables you to monitor the product usage. You need to install the AutoPass License Server in order to do this.
- Ongoing support for all platforms that this product is available for.

Features include:

- Installing this release installs both the AutoPass Daemon and the Sentinel RMS License Manager. Both of them are available in the Micro Focus License Administration tool.
- You can have both AutoPass and Sentinel RMS licenses installed on the same machine. Optionally, you can switch off the licensing technology you do not use.
- If you are an existing user of a Visual COBOL or an Enterprise Developer product, you only need an AutoPass license if you want to utilize usage logging or if you want to use your product on a platform on which Sentinel RMS is not supported.
- If you are a new user of the Micro Focus COBOL products, you will normally be issued an AutoPass license.
- Micro Focus will continue to provide Sentinel RMS in future releases of this product.
- AutoPass licenses should be installed into the existing Micro Focus License Administration tool, and not in the AutoPass License Server.

Installing licenses at the command line

On Windows, Micro Focus License Administration is now also available as a command-line utility.

For more about AutoPass and usage logging, and about Micro Focus License Administration, see *Managing Licenses* in your product Help.

The Micro Focus Unit Testing Framework

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The following enhancements have been made to the Micro Focus Unit Testing Framework:

- The MFUPP preprocessor has been introduced to provide a seam between your program and a unit test. This seam lets you access the internals of a program under test, allowing you to create granular unit tests from paragraphs or sections. The MFUPP preprocessor also provides the ability to mock programs or stub programs out to create a unit test.

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 Case Number followed by the Defect number (in parentheses).

Common Communications Interface

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- The default TLS Security Level has been increased from 0 to 1. This change will not affect you if you have specified your own security options.If you rely upon the default TLS security options you might find that some old clients that are restricted to the use of weak ciphers will no longer be able to connect. See *Security Levels* and *Specifying a Server Protocol and Cipher Suite Preference* in your product Help for more information on the change to Security Level 1.

  (8453)

Data Tools

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- The editor now automatically selects the first record in comparison when first loaded. The Editor will automatically select first record in comparison when first loaded

  3212848 (11362)
- Data File Tools now provides the Data Explorer, which is a catalog view that can connect to either ESMAC or ESCWA. When connecting to ESCWA, it enables you to open multiple data sets.

  (70242)
- The scrolling speed for formatted records has been increased.

  00366018 (11378)

Enterprise Server

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- Previously, there was no security check performed when an ESMAC user tries to access the console, traces, or dumps. This is no longer the case. If you use LDAP-based security you can now add the new DIAGS resource under OPERCMDS class and provide access to ESMAC users accordingly.

  3231918 (12556)
- The "Requested Licenses" field has been removed from the ESCWA General Properties page as it is not used.

  (3956)

- Added the option to delete the associated package when the service has an associated package and that service is the only one with that associated package.

  00370971 (22264)
- When a new region is created in ESCWA, the Web listener's conversation type is now correctly set to "Web" instead of "SOAP and J2EE (legacy)".

  3244594 (21270)
- The Group can now be specified when starting or stopping a region using ESCWA.

  00371543 (12436)
- In ESCWA, the Security Manager properties could be set too long, causing a crash. This has now been fixed.

  (61192)
- This fixes an issue with the change to the behavior introduced with the passtoken changes in previous patch updates. An issue might occur in a stacked environment with OS ESM and MLDAP_ESM. Job dispatch would issue a deny when `cassub` was used.

  3229601 (11524)
- An issue when using a secured MFDS, with an LDAP ESM as first in the stack, and a PAM ESM as second in the stack, and with federation enabled, has been resolved.Previously, if the security was reinitialized through any means (such as clicking the apply button, or reordering the ESMs and changing them back), the MLDAP ESM would not be able to correctly determine that the PAM ESM user user1 in group1 matched the LDAP resource rule which described group1 within the resource rule. This should have worked because the group information is shared when federation is enabled.With this fix, the resource rule in LDAP correctly identifies that the group1 rule applies to the PAM ESM user user1, on both initialization and reinitialization.Behaviour Change:When SAFMGR was reinitialized, PAM ESM was pointing to the old shared groups table, so MLDAP ESM and PAM ESM ended up pointing to different shared groups tables. It should have been the same table as federation was enabled.PAM ESM groups table is now cleared on initialization, so that the ESMs will now point to the same groups table.

  3221760 (11697)
- ESMAC now includes cross-site request forgery protection. A 403 Forbidden page is now returned whenever a user attempts to bypass the protection. If you want to access more than one region in ESMAC at the same time, it can no longer be done in the same browser session. You can access the regions in separate private browsing sessions.

  3216052 (13208)
- A new resource class, DCBINFO, enables you to control who can access the DCB information for cataloged datasets in ESMAC for a LDAP secured region. DCBINFO must be created for existing users to be able to access the DCB information in ESMAC.

  3231918 (13300)
- We now take note of VALUE clauses for fields and properties defined in a JVM attribute (annotation), and output the default value to the class file. When using an attribute, any field that does NOT have a default value must now be specified explicitly.

  (30021)
- MQ commands did not work because Windows installations of MQ are client, not server. This has been ccorrected.

  (46022)
- MFDS now correctly uses the specified region user in the ESCWA Directory Server Scripts page or Directory Server user in the ESCWA Directory Server Configuration page. Otherwise, it defaults to the current user.

  (8727)

- If MFDS is set to "Restricted Access" and the MFDS "Anonymous access" option is off (the default), then valid authorized credentials will be required to access information stored in the Directory Server either via the legacy UI, ESCWA, or utilities such as mdump.

  (62100)
- When MFDS is TLS enabled and a client connects on the non-TLS port, it will now send a HTTP 302 Found response to the client to redirect it from the non-TLS port to the TLS-enabled port. This is seamless to the Web browser.

  (46024)

Interface Mapping Toolkit

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- Headers are no longer mapped in the output of WS2LS.

  3235120 (12606)
- Top-down CWS generation from WSDL now properly marks hexBinary fields in the generated WSBIND.

  3236069 (11690)
- WS2LS now assigns usage COMP-3 to items mapped from decimal and integer types in the WSDL.Behaviour Change:WS2LS will now assign usage COMP-3 to items mapped from decimal and integer types in the WSDL. This will affect the generated copybooks and WSBIND. Previously-generated files will still work, and users should be using the WSBIND and copybooks from a single execution of WS2LS in their environment anyway, since changing one results in (or reflects) changes to the other.

  3235120 (13494)
- In copybooks generated by WS2LS, several data types now have mappings that are closer to those generated by IBM's DFHWS2LS.Behaviour Change:In copybooks generated by ws2ls, several data types will now have mappings closer to those generated by IBM's DFHWS2LS.

  00365433 (11693)

Licensing requirements

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- The following platforms - Solaris, Red Hat on IBM Z System, SUSE on IBM Z System, and Ubuntu - are now licensed using a new licensing model called AutoPass. These platforms and licenses are not available from the Software Licenses and Download portal (*sld.microfocus.com*) if you are using the existing SafeNet license technology. To obtain AutoPass licenses for the aforementioned platforms, contact your account manager to discuss your actual requirements, and also raise a support incident to track the request.

Run-time System

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- When defining the file name for CBL_CREATE_STACKDUMP, %f now expands to basename of the program correctly when used cross-process.

  (60049)
- When CTF trace level is set to info (for post-offset values only) or debug (for pre-offset, offset and post-offset values) and component rts#process is set to true, the API will now dump the captured metrics to the output CTF file.

  (27040)

SQL: Mainframe Batch Database Tools

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- An equivalent of the mainframe DB2 utility DNSTIAUL, SQLTUL, is now available in the MBDT utility suite.

  2148818 (10857)

SQL: OpenESQL

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- An issue with compiling native programs that use SQL TYPE IS XML AS CLOB has been resolved.

  3240037 (12679)

Resolved Issues

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

CGI Support

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- The query string for CGI Applications using REQUEST_METHOD=GET no longer has a limit of 4096 bytes.

  3227061 (10285)

Code Analysis

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- A problem that caused the exclusion of the SQLCA copybook has been fixed.

  3219870 (11398)
- This release supports nested COBOL programs in a single source module.

  00366795 (12647)
- Verification errors for a specific structure-based slice have been fixed.

  3236246 (13377)

Common Communications Interface

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- A problem that caused the ccierr.log to contain multiple "connect_endpoint(), called in NET_CONNECT, return code 2" messages has been fixed.

  (77040)
- When running an application that uses CCI in an aggressively multi-threaded environment, RTS 114 errors could be generated.

  00370924 (13510)
- Because of a previous optimization that was made it might result in getting stuck on a blocking receive. This has been fixed.

00457870 (57287)

- Enterprise Server for UNIX and COBOL Server for UNIX now include the same Run-Time System and CCI C header files that are available in Enterprise Developer Unix Components and in Visual COBOL Development Hub.

  3230929 (13552)
- An integer overflow in CCI time handling has been fixed.

  (9632)
- When running an application that uses CCI in an aggressively multi-threaded environment, RTS 114 errors could be generated.

  00370924 (12575)
- A rare crash in the Micro Focus Communications Server under heavy load has been resolved.

  3238018 (11727)

Data Tools

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- A 'large file' alert is no longer displayed when opening files > 128 MB and the 'Use temporary file for editing' option is not selected.

  (69199)
- The Column indicator in the status bar now shows the correct value when selecting a field in the right-hand pane (structured view).

  00491656 (70177)
- An issue which could cause the Data File Editor to hang the region has been fixed.

  00426198 (58053)
- The Data File Editor now provides navigation to the last page when showing fixed-block, variable-block, and indexed files, and also for filtered results. If Go To <record-number> is also larger than the number of records available, the last page of records is displayed, instead of a "no record found" error returned. For sequential fixed-block files, the available number of records is also shown.

  (88030)
- The ruler will now stay at the top of the displayed record list, even when you scroll down the page.

  00485504 (71308)
- The performance of the Data File Tools catalog has been enhanced when using a database-hosted catalog file, and when specifying a data set name filter with a leading wildcard character.

  00377995 (31059)

Dockerfiles

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- On Ubuntu, in order for debugging to work within a Docker version 18.04 Container, you must update the kernel of the Docker host from version 5.0.0-27 to 5.0.0-31.

  (9295)

Enterprise Server

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- HTTP 403 restrictions no longer erroneously prevent access to ESCWA and ESMAC after interacting with the MONITOR > Monitor page in ESCWA and ESMAC.

  (57283)

- Configuring a region to have 47 Service Execution Processes resulted in the console daemon failing to start on DBCS platforms. This has been fixed.

  00371935 (13365)
- An EJB-wrapped COBOL service involving multiple invocations would not always commit database changes until the dispose event was driven. This resulted in updates not being accessible while the service was in-flight. This has been fixed.

  00367387 (13507)
- Using the AMODE option to request a reload of a data table using the CPMT transaction sometimes resulted in a FUNC abend. This has been fixed.

  00726248 (77027)
- An issue with the FAULTCODESTR parameter on the SOAPFAULT CREATE API has now been resolved.

  3232615 (11548)
- The Enterprise Server utility program casclsec did not work correctly on non-Windows platforms. This has been fixed.

  00365438 00375691 (12562)
- The output from caslock is no longer truncated at 64k.

  00368510 00477856 (11573)
- A message is now displayed in the `console.log` file when Enterprise Server fails to create a process when starting a region.

  3222161 (11434)
- Fixed parameter processing when the `-x` option is specified with `casstop`. Information about the `-x` option has been added to the command line help for `casstop` and `casstart`. See *casstop* and *casstart* in your product Help for more information.

  (26323)
- HTTP Headers processing now supports HTTP Headers that do not have any spaces between ':' and the value.

  3232451 (12434)
- A truncation of custom messages occurring in HSF has been fixed.

  00382022 (39011)
- On WEB RECEIVE and WEB SEND, if you omit all of the code page conversion options (SERVERCONV, CLNTCODEPAGE, CHARACTERSET, HOSTCODEPAGE), no code page conversion will take place.

  3232480 (11632)
- When a CWI analyzer program was not returning a converter or a server program, an "EIBRESP 27 pgm not found" message was returned. Enterprise Server now correctly returns the static response received from the analyzer.

  00367285 (28199)
- The `dfhcbtct.cpy` copybook is now provided with the product.

  (25040)
- A change to an internal synchronization procedure resulted an increase in the time taken for a DELAY to respond to a CANCEL from 20ms to 100ms. This has been fixed.

  3236122 (12619)
- An issue with multiple header processing programs in the pipeline has been fixed.

  3225239 (11464)
- HSF records had a response time of 0 when the application executed EXEC SQL statements and there were no trace flags switched on. This has been fixed.

00367263 00383874 (23073)

- If ES_ESM_XUSER=NO, Enterprise Server still performs a check for the surrogate user to be defined in the system but does not check for the surrogate authority.

3231824 (13335)

- In the case of the SEP monitor thread performing a soft kill, CAS will now defer freeing shared memory blocks (ICE and ACPE) associated with task DCA until end-of-task processing in the main thread.

(29002)

- Enterprise Server now enables automatic reconnection to the standby Queue manager in an Multi-Instance Queue Manager. See "Reconnecting to an MQ Server in a Multi-instance Queue Manager" in your product Help for more information.

00367275 (13387)

- An issue where the Syncpoint option of MQ PUT and GET APIs was set to "NO_SYNCPOINT" has been fixed.

3241185 (11747)

- When using MQBACK in JCL the messages were not rolled back if the user had not specified mqpmo-syncpoint when the message was stored using MQPUT or MQPUT1. This has now been fixed.

00725720 (69586)

- Intermittent I/O errors (typically reported with a 9/13 file status) occurred during file creation when using DB2 datastores.

(9767)

- An RTS 114 no longer occurs in CASSTORE during concurrent SET-FILE / RELEASE PROGRAM statements.

3240785 (12742)

- Ensure that for protected starts the recoverable flag is set on the TST entry that is cached on the TCA TST chain.

00367517 (53093)

- An issue existed with importing and/or exporting a (long) SIT fileshare username and password with `casrdtup` or `casrdtex`. Lower-case characters are no longer converted to upper case, and the fileshare username and password are now correctly displayed in both ESMAC and ESCWA.

00371939 (23050)

- A new filter field "resFilter" has been added to the following ESMAC resource listing modules:

  - Every resource in by Type
  - Every resource in by Start L
  - Resource lists under groups
  - Every active resource type except Locks

  This parameter will filter the list of resources returned and displayed by ESCWA and/or ESMAC. This will avoid excessive response buffers being sent over the network which might degrade browser performance. In addition, a new environment variable ES_RDO_MAX_RESOURCES has been added. This enables you to specify a limit to the number of records ESCWA and/or ESMAC will attempt to display. For JSON requests the list being truncated will be indicated by the addition of the JSON property "truncated": true.

00367293 (13581)

- The stack size of `cassi.exe` has been increased from the default 1Mb to 2Mb.

3232744 (13324)

- CICS-MQ Bridge functionality is now available as a Technical Preview. It supports CICS target DPL applications that interact either with a COMMAREA or CONTAINER interface.

00363634 (11447)

- On UNIX platforms, under certain circumstances the request to start a process was incorrectly reported as having failed. This has been fixed.

  00696684 (82001)
- A trace that was not controlled is now emitted when the trace API flag is enabled.

  3231371 (11628)
- Default users were not added to HSF. This has now been fixed.

  00376906 (31028)
- Enabling ESLOGGING for the Oracle Switch resulted in an error. This has been fixed.

  (46056)
- XA switch now handles CAS xa-flow correctly to resolve in-doubt transaction issues on connection loss.

  00368472 (48018)
- XA switch now handles CAS xa-flow correctly to resolve in-doubt transaction issues on connection loss.

  00368472 (48018)
- The XA Switch module now tries to reuse an existing connection in order to prevent multiple connections being opened for the same XA resource within the same process.

  3239642 (13477)
- The DB2 XA switch module now works with DB2 applications that are compiled with the NOPRE directive option.

  3237650 (11691)
- The ES_XA_%xaname%_OPTIONS environment variable can attempt to reconnect up to a maximum of 9999 times.

  00455239 (59135)
- A new exit for ESXACUSTOMORA has been added to the Oracle switch module. The build scripts have also been updated with some new options to enable this logic.

  00367295 (20268)
- The XA Switch module now handles the Duplicated Connection error correctly.

  3211450 (11427)
- The Vault module is no longer unloaded after the first transaction.

  3243323 (12584)
- The SQL cursor is now kept opened when CICS SYNCPOINT is executed if the cursor type is WITH-HOLD or the SQL compiler directive option CLOSE_ON_COMMIT=NO is specified.

  00364548 (11684)
- The DB2 XA Switch module now sets the Package Path correctly.

  00362931 (12718)
- The Micro Focus Directory Server security configuration custom text could not be set or modified from the Enterprise Server Common Web Administration (ESCWA) HTML GUI interface or API.

  (9646)
- ESCWA can now set region listener endpoint values that contain a valid hostname as well as an IP address value.

  (10258)
- When creating a new Communications Server for a region the "autostart" value was incorrectly set. This has been fixed.

  (71033)
- MFDS now supports the HTTP Strict-Transport-Security (HSTS) response header in responses from its TLS-secured endpoint.

  00368444 (11617)

- Changing the configuration of a running region no longer causes the region to change to 'Not Responding' status.

  00620712 (70308)
- You can now establish new MFDS sessions even if the maximum number of concurrent sessions is reached. A minimum number of UI administration sessions will always be retained.

  3240043 (13428)
- An issues with the MFDS service not starting if the MFCESD licensing daemon was not started has been resolved.

  3228431 (12644)
- The Micro Focus Directory Server HTML GUI now includes an additional XSS protection.

  3243314 (13537)
- Previously, a low-privileged user (without read permissions to a region) could manipulate URLs to get read access to that region's Server properties, listeners, services, packages and handlers. This information leakage has now been fixed, and in these case the user will now see a 403.

  00368584 (11392)
- Region import will no longer fail if the mfServerNonDefaultSecurityConfiguration node is missing.

  00696539 (69402)
- Exporting the MFDS Journal when using a 64bit MFDS process could cause a crash. This has now been fixed.

  (9735)
- MFDS no longer errors when eight Security Managers are configured to be stacked for use by the MFDS process. Eight stacked Security Managers is the maximum permitted.

  3232694 (12528)
- When a malformed request was sent to MFDS it could become unresponsive. This has been fixed.

  00445311 (58026)
- Fixed a regression causing incorrect files to be output from an MFDS Web UI export.

  (86058)
- When using MFDS via a web browser or connecting to it via mldap (with MDUMP for instance) it was possible that MFDS would not respond immediately. This has now been fixed.

  (57189)
- If a user or user group has a "Read" allow but no "Update" allow ACE for the "Enterprise Server Administration" class "Options" resource, then they will be able to view but not update the MFDS options values. Previously only the "Update" rule allowed a user to view MFDS options.

  3217327 (12380)
- MFDS binary repository exports (non-XML exports) in Visual COBOL and Enterprise Developer 6.0 could contain listener data that was not cross compatible if imported on certain UNIX platforms that did not create the exports.

  (61176)
- MFDS now sends the "Secure" cookie attribute if MFDS has been configured to use TLS.

  3228919 (11606)
- If the MFDS process has been restarted or you have clicked its "Renew" option, client applications such as Server Explorer inside the IDE and ESCWA will now automatically reestablish a connection.

  (10516)
- When using startup and shutdown scripts in MFDS, when run for a second time it would result in a permission error when writing the script out to a file. This has now been fixed by keeping a backup of the existing script and by writing the new one out again.

  00377287 (30073)

- A potential double free caused by a race condition involving the exit handler has been fixed.

  3242625 (11709)
- MFDS became unresponsive when performing multiple simultaneous service deployments. This has been fixed.

  00739041 (87099)
- When you perform an XML export or import of regions with multiple communication processes, the communication process autostart option value is now correctly preserved.

  3236278 (11644)
- When using the region name option (/f) with `casclsec`, the option was not passed to the utilities invoked. This has now been fixed.

  00696227 (73045)
- MFFTP creates an end-of-line (eol) file when the file transferred from Enterprise Server is a Variable Block (VB) file. A new environment variable (MFFTP_DISABLE_EOL=Y) enables the VB file to be transferred from the Enterprise Server environment as it is. The default value is 'N'.

  00477620 (57488)
- An issue with a SEP been killed and stuck in termination has been fixed.

  00675262 (69370)
- When the External Security Facility in Enterprise Server has the auditing option enabled, with the syslog auditing option, some processes could accumulate multiple connections to the syslog server.

  00374548 (12564)
- Enterprise Server can optionally cache the results of user signon (ESF Verify) requests in order to improve the performance of signon operations. Caching these requests from any mainframe-emulation environments now works properly when enabled in the security configuration.

  3232724 (11516)
- In some cases, portions of the configuration text of an Enterprise Server External Security Facility configuration were not processed correctly. This has been fixed.

  (58016)
- The Enterprise Server ESF Admin LISTUSER command has a new optional parameter which disables locking the group list while computing a user's group membership. See the documentation for LISTUSER in your product Help for more information.

  3235237 (11586)
- Enterprise Server ESF Update requests no longer report an error if a Security Manager does not recognize a user or group being updated.

  00383391 (32087)
- When Enterprise Server Externals security is used with both PAM and LDAP external security managers, and all-groups, federation, and PAM groups are enabled, the PAM groups are correctly added to the user's group membership when the PAM ESM is not the first ESM in the list.

  3221760 (11538)
- When Enterprise Server External Security is configured with both a PAM security manager (pam_esm) and an LDAP security manager (mldap_esm), and all-groups mode and group federation are enabled, and the PAM security manager is configured for PAM group processing, the various ESF Update operations (update user, update group, update all) will now correctly update the user group membership information from both security managers.

  (8088)
- The Enterprise Server External Security Facility's Update feature could sometimes cause a SEP to abend with a COBOL RTS 114 error. This has been fixed.

  00384962 (47011)

- The Update All button was not refreshing the group permissions for a name mapped user in an LDAP ESM. This has been fixed.

  00364056 (11765)
- Arabic support for Enterprise Server applications is available as part of the in-built code set support. If you are building Arabic support into Enterprise Server applications, your terminal emulator must support the Arabic EBCDIC 420 code page. Support is added by building your applications and configuring your enterprise server regions with the MFCODESET variable set to the supported country code (0420). Your product's in-built code set translation utility performs translations between the ASCII 1256 Arabic code page on your enterprise server region, and a terminal emulator that supports the Arabic EBCDIC 420 code page (for example, IBM's Personal Communications emulator).

  00374780 (11480)
- If a deployed application does not require a full Enterprise Server product to be available, but also relies on the inbuilt DBCS translation support, those applications must be deployed with the appropriate code set mapping files, and then you must use the MFCODESET_DBCSDIR environment variable to locate those files at run time. See 'Codeset Translation' in the product documentation for more details.

  (10286)
- Access to the ESMAC pages are now verified and validated server side when applicable. A disabled button client side could be re-enabled and used to access an unauthorized page. This has been fixed.

  00368464 (12713)
- Enterprise Server will now issue a physical cancel to ESMAC modules even if CAS_SRV_CANCEL is set to a non-default value.

  3245515 (27055)
- Redundant comments in the source code have been removed.

  3239529 (12691)
- Cookie validation has been improved to prevent any unauthorized tampering with the casCookie.

  00368456 (11740)
- Creating an Active MQ Listener failed. This is now fixed.

  (69437)
- Changing the status of a listener through ESCWA no longer times out on UNIX.

  (71113)
- Enterprise Server External Security passtokens and the DCAS (Digital Certificate Authentication Service) feature now work properly when using a security configuration with two or more Security Managers of different types.

  3231876 (11549)
- The Enterprise Server DCAS feature has been enhanced to work with IBM HATS.

  00431373 (57050)
- Handling sessions for the Micro Focus Binary Protocol has been enhanced in the Micro Focus Communications Server. This resolves a number of long-standing issues where sessions could be leaked or misused by misbehaving clients. It affects J2EE services hosted by Enterprise Server and possibly some other uses of the MFBINP protocol.

  00367384 (12716)
- Language specific decimal separators are now dealt with by the MFCS and by extension ESCWA components when outputting JSON.

  00502140 (69256)
- Enterprise Server's `esfupdate` utility now supports updating servers where the Communications Process control listener is configured for TLS (SSL).

  3236811 (11615)

- In Enterprise Server, performance and capacity have been improved when retrieving large files, such as server log files and spool output, over the Internet.

  00370973 (12381)
- The following headers on the responses for the multiprotocol listener (often named "Web Services and J2EE") have been added:- X-Frame-Options- X-XSS-Protection- X-Content-Type-Options- Content-Security-Policy This includes ESMAC responses.Header values:“X-Frame-Options": "SAMEORIGIN""X-XSS-Protection": "1; mode=block""X-Content-Type-Options": "nosniff"Content-Security-Policy": "default-src http: https:; img-src 'self'; script-src 'unsafe-inline' 'self'; style-src 'unsafe-inline' 'self'; worker-src 'none'; object-src 'none'"

  00367046 (13389)
- MfsecretsAPI no longer masks exit codes from COBOL applications.

  (10521)
- Support for the Hashicorp vault is now available in the Secrets API.

  00370908 (11321)
- The migrate command of Mfsecretsadmin now works when two separate configurations files are specified.

  00365440 (11662)
- When ESMAC CSRF handling was active, and the first request to ESMAC was a POST request, the request failed because it had no CSRF token. To correct this, the ESCWA server now obtains a CSRF token by making a GET /native/v1/regions/{host}/{port}/{region}/esproperties request before the POST.

  (10570)
- A notification was incorrectly displayed when opening or closing a DCT. This has now been fixed.

  00364218 (12601)
- The number of items than can be displayed in the ESCWA tree has been increased to 512.

  (8765)
- An issue where it was not possible to set the Codeset on Catalog Entry DCBs in ESCWA has been resolved.

  (9706)
- Added a DOWNLOAD option to the ESCWA Journal page. See *Journal* in your product Help for more information.

  (57228)
- The STOP POLLING button has been added to the ESCWA Control page. This enables you to stop polling for the region's status while starting and stopping a region.

  Note: Clicking STOP POLLING will not stop the region form starting or stopping.

  (6983)
- An issue with regions created in ESCWA not showing in the Web Service - Deployment Server list in Eclipse has been resolved.

  3234600 (13345)
- The ESCWA security page did not clearly identify that it was only for configuring ESCWA's security and did not affect Directory Servers. The page now has the new title "ESCWA Security Facility Configuration" as well as a new information alert to make this clear to users.

  (9711)
- A problem translating names displayed on table filters to match their corresponding columns has been fixed.

  (53076)
- ESCWA now creates the `commonwebadmin.json` file if it has been deleted rather than refusing to start. You can use this to reset ESCWA back to a default state.

00367573 (13511)

- In ESCWA, you can now disable the logon screen animation. To do this, at the top right of the menu bar click the user icon and then switch off Animate Logon.

00366659 (11795)

- ESMAC sent response and latency percent information to ESCWA which did not total 100%. In this case, ESCWA was displaying the wrong information in its HSF detail charts. This has now been fixed.

00372430 (27158)

- The API documentation for ESCWA ESM requests has been updated.

(26197)

- ESCWA lost connection information for Directory Servers when the ESCWA session timed out. This has been fixed.

(7891)

- Underlying issue causing the SSL authorize page to appear when navigating between listeners has been fixed; the SSL authorize page now only appears when you click Authorize.

(8638)

- When using the ESCWA or MFDS Web APIs, a new session cookie is now attached to a failed API response.

(9661)

- ESCWA now handles regions that are started correctly but it cannot contact if it has its listeners set to connect on loopback only.

(51008)

- ESCWA now validates ports for /config APIs.

(8730)

- MFCC will now correctly parse IPv6 addresses when connecting.

(8498)

- Fixed segfault on the exit of the ESCWA shutdown command line option.

(69484)

- The new ESCWA copy region functionality enables you to copy or discard the port as required.

2795268 (11098)

- ESCWA will now generate an error and prevent changes being made to a Communications Process if the region would no longer have a Communications Process set to auto start.

(62177)

- Control characters present in the `console.log` resulted in invalid JSON. The ESCWA server now replaces these control characters with spaces.

(61254)

- The size of tables in ESCWA are now adjusted based on the number and height of the rows.

(10385)

- MFDS Logoff method has been implemented in the ESCWA API and Web UI.

(51041)

- Widgets on the ESCWA dashboard now display the name of the directory server as well as the region. This enables you to differentiate where regions have the same name.

3225866 (13408)

- The Enterprise Server MLDAP ESM module no longer leaks sockets when there are transient connection or bind failures with the LDAP server.

00378150 (30089)

Interface Mapping Toolkit

Back to the list

- Generated clients that use InvokeService04 will now compile and run correctly on UNIX.

  3233543 (13384)
- A problem that prevented JSON-REST Web services from using an application RETURN-CODE to set the response HTTP status code has been fixed.

  00369975 (11324)
- A problem that prevented JSON-REST Web services from using an application RETURN-CODE to set the response HTTP status code has been fixed.

  00370461 (11716)
- New service interfaces added to Enterprise Server Application projects are now in the correct format.

  (10415)
- For `ws2ls`, unions are now mapped with their default whitespace behavior as collapsed.

  3237304 (13437)
- For `ws2ls`, boolean data types in the WSDL are now defined as BOOLEAN in the generated WSBIND file.

  3237798 (12511)
- When returning the LDO array of all operations in a JSON service, any operation in the JSON response with an empty "path" attribute is now returned with a "href" value of "/<operationName>".

  (10411)
- When data containing a null character is returned to a Java string, the null character is no longer used as a delimiter and will instead be included in the Java string

  00367385 (11622)
- A service created from an earlier non-versioned service definition now gives correct behavior on a POST or PUT REST operation.

  00372694 (13565)
- In a program that has two or more tables that are empty, the SEP would abend after deploying and running the service in Enterprise Server. This problem has been resolved.

  3229853 (11498)

Micro Focus Server Administrator (GUI)

Back to the list

- A potential MFDS abend in scenarios where a "Renew" is repeatedly issued and TLS is enabled has been resolved.

  00368581 (13379)
- A Content-Security-Policy has been added to all MF Directory Server HTTP response headers. Additional restrictions on how MFDS process shutdown requests are handled.

  00379021 (30103)
- Secured REDIS servers now automatically connect in secure mode.

  3229330 (11499)

Setup Issues (UNIX)

Back to the list

- If MFDS is started and attempts to use a zero sized XML options file, instead of terminating with an error it will write out the default options and continue to operate.

(53015)

SQL: COBSQL

Back to the list

- Support in COBSQL for a large number of REDEFINE data items has been increased to up to 8000.

  3244127 (13591)
- COBSQL did not correctly handle the byte conversion of FETCH statements with 10 COMP items and one Non-COMP item. It now correctly handles this scenario, as well as the same one in INSERT statements and EBCDIC conversion.

  00365970 (22267)
- COBSQL now supports EBCDIC conversion in the case in which the operator token is right next to a host variable inside a DECLARE SELECT statement.

  3232492 (13562)
- COBSQL now handles correctly a long list of host variables when the KEEPCOMP Compiler directive is used.

  00365968 (13415)
- COBSQL now displays an error (in Visual Studio, Eclipse and on the command line) when the procobol command is not found.

  (10332)
- EBCDIC conversion when DECLARE TABLE statements are present is now handled correctly.

  3236281 (12536)
- COBSQL now supports the EBCDIC conversion in the case in which the host variable used in a FETCH statement was previously initialized, and the FETCH statement returns no rows.

  3232429 (13368)
- A problem that caused COBSQL to abend with memory errors when the KEEPCOMP variable was used along with certain array values in a "FOR :HOSTVAR ALLOCATE" statement has been corrected. COBSQL now skips unnecessary byte conversions for "FOR :HOSTVAR ALLOCATE" statements.

  00365886 (13607)
- COBSQL has been updated to handle redefined variable declarations broken into multiple lines.

  00430595 00506991 (59202)
- COBSQL now supports EBCDIC conversion of saved declare cursor variables with '=: variable syntax'.

  3240853 (13447)
- COBSQL has been updated to override or reset previously set directives with those specified by inline $SET statements as needed.

  00422020 (53080)
- COBSQL now supports host variables used in FOR :HOSTVAR statements when the KEEPCOMP directive is used.

  00373979 (11794)
- COBSQL is no longer unnecessarily setting a "bad pointer" to check if the EBCDIC modules are present.

  3242687 (12748)
- COBSQL now supports EBCDIC conversion of redefined host variables.

  3241688 (12700)

SQL: DB2 ECM

Back to the list

- DB2 ECM now correctly handles data item names with the character 'f' or 'F'. It also handles arrays of COMP values correctly when the FOR n ROWS clause is used.

  3229912 (13341)
- When DB2(RELEASE=COMMIT) was specified and the targeted database was not DB2 z/OS, the compiler generated a warning indicating that the directive would be ignored. This has been corrected.

  00371184 (11372)
- Using a group host variable with FILLER could cause a Visual Studio background parse crash of Visual Studio. Compiling from the command line would result in a subscript out-of-range error. This issue has been resolved.

  00371048 (27157)
- A problem compiling a COBOL program using dialect ENTCOBOL on a program using ROWSET in a SQL statement has been fixed.

  00424387 (57057)
- An issue with the HCO for DB2 LUW tooling in DDL generation where creating a table with a "FOR EACH" or "FOR BIT" clause on a column was generated incorrectly has been resolved.

  00373396 (11400)
- DB2 ECM now handles COMP data items correctly when the NULL indicator array is involved and COMP data item is used in the SQL Statement as both input and output host variable.

  3236080 (12661)
- The HCO for DB2 DDL tool erroneously inserted a space when an input line filled the maximum column with a non-space literal value, and continued on the following line at position 1. This has been fixed.

  3205352 (8474)
- The limit on the NULL indicator array size has been extended from 255 to 1012.

  00368494 (12545)
- A problem that caused a failure in the CheckSwitchUserStatus section when running a job that uses DB2 User impersonation has been fixed.

  00375618 (32025)

SQL: Mainframe Batch Database Tools

Back to the list

- There is no longer a problem outputting messages with a length less than 4 bytes in the SYSPRINT of DSNTEP2. The minimum length is set to 1.

  00695983 (73016)
- An error sometimes occurred when submitting a SQLTP2job with a very large SYSIN. This has been corrected by enabling the buffer to be incrementally increased.

  00403340 (46032)
- There is no longer an issue with exiting with code 8 if loading SYSREC is defined as NULLFILE or DUMMY using the 'Check Row Size against LRECL of SYSREC' option checked.An issue with the NULLFILE or DUMMY SYSREC processing where 'Check Row Size against LRECL of SYSREC' option being processed incorrectly has been fixed.

  3230497 (11625)
- A problem loading date, time, and timestamp literals into char fields of tables in DB2 LUW using MBDT has been fixed. The data formats are now kept.

  00485911 (71041)
- Previously, more than one SYSIN statements in a JCL were not being picked up by SQLTP2.

  3240790 (13559)

- A problem concatenating to SYSPRINT in SQLTP2 has been fixed. The successive contents will now be appended in SYSPRINT.

  00502243 (71219)
- There is no longer an issue with submitting a large volume of SQL code (such as 300,000 lines) via SQLTP2. The limit on the SQL volume has been extended to 500,000 lines.

  00367282 (26062)
- A problem sometimes occurred when SQLTP2 was running in an EBCDIC enterprise server region, andASCII character padding existed in SYSPRINT of FB format. This has been corrected.

  00403637 (49001)
- There is no longer an issue with specifying a SYSPRINT if the DCB parameters are set correctly with LRECL=133. The RECFM is set to VBA by default but can be overridden to FB in the DCB of SYSPRINT.

  00367261 (13522)
- There is no longer an issue with producing garbage characters in the SQLTP2 SYSPRINT, if it is cataloged as RECFM = FB.

  00367261 (24083)
- The LOG NO option for SQLUTB LOAD is now supported if the user has the privileges of ALTER TABLE ACTIVATE NOT LOGGED INITIALLY WITH EMPTY TABLE.

  3230163 (12507)
- There is no longer an issue with using reserved words, such as "FINAL" and "timestamp", as column names in PostgreSQL for running SQLUTB LOAD.

  00364353 (28063)

SQL: OpenESQL

Back to the list

- When compiling with the ILTARGET directive without specifying x86 or x64 bitness, an unknown type 'type OdbcWrapper.Class1' compiler error was returned erroneously. This has been corrected.

  (52174)
- An error that occurred when a DB2 stored procedure was called from the ADO runtime has been resolved.

  00425931 (58056)
- Opened cursors are now kept open after a ROLLBACK if SQL directive option CLOSE_ON_ROLLBACK=NO or BEHAVIOR=UNOPTIMIZED is specified.

  3238292 (11710)
- OpenESQL application now retrieves DBCS strings correctly from PostgreSQL database.

  00369140 (28051)
- An issue that caused truncation of a dynamic SQL statement and that resulted in a runtime error, even when the maximum length of an allowed statement had not been exceeded, has been corrected.

  00454855 (58163)
- The OpenESQL directive option CLOSE_ON_COMMIT is now available to select from the project's properties inside Visual Studio and Eclipse.

  00364548 (11631)
- The OpenESQL run-time now handles Oracle passwords correctly.

  3230203 (13545)
- A problem that prevented the OpenESQL preprocessor from recognizing the SQL Server OPTIMZE FOR syntax has been fixed.

  00465904 (57173)

- OpenESQL did not handle syntax checking for PostgreSQL when using VARBINARY type variables.

  3239363 (13433)
- The new PICXBINARY SQL compiler directive option,enables COBOL and PL/I programs to use PIC X(n) host variables to receive data from BINARY, VARBINARY, LONGVARBINARY columns in binary format without changing source to use SQL TYPE BINARY host variables.

  3242422 (12745)
- .NET COBOL applications with dynamic SQL statements using SQLDA now work correctly via the ODBC driver.

  00370895 (11701)

XML Support

Back to the list

- The XMLIO run-time system now correctly handles namespace prefixes specified in the IDENTIFIED BY clause.

  00371218 (11634)
- The XML PARSE run-time system can now handle large elements content.

  3222846 (13461)

Known Issues

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

In addition, note the following:

- Oracle does not support deployed .NET Core 3.x client applications on SUSE Enterprise Linux accessing Oracle databases.
- In Visual COBOL 4.0 and 5.0 in an extremely small and limited set of cases, an issue could occur with running .NET executables and .dll files, or JVM .class files, created with an earlier version of the product. This issue only occurred if:

  1. The application performs an IS NUMERIC condition test on a variable declared with USAGE NATIONAL.
  2. The application has been created with Visual COBOL 3.0 or earlier, then executed in Visual COBOL 4.0 or 5.0.

  In these rare cases, the IS NUMERIC test could provide the wrong answer.

  In order to resolve this issue, in Visual COBOL 6.0 and later, the .NET COBOL and JVM COBOL run-times reject any program using IS NUMERIC on a NATIONAL item which was compiled with a version 5.0 or earlier of the product. You receive a "missing method" exception. To resolve the issue, you need to recompile any programs that use this construct in Visual COBOL 6.0.

  Program that do not use NATIONAL data, or those that have been recompiled in Visual COBOL 6.0 or later are not affected.
- Copying and pasting the contents of a license file into the **License file** field of Micro Focus License Administration results in the error "The path is not of a legal form. Please contact Micro Focus SupportLine".

Other Issues Resolved in This Release

The numbers listed are the Support Incident Numbers followed by the Defect number (in parentheses).

- 00367244 (12615)

Unsupported or Deprecated Functionality

This section includes information about features or functionality that are not supported.

- The SafeNet Sentinel licensing system has been deprecated and will be not available in this product starting with the next major release after release 9.0. The SafeNet Sentinel licenses will not be supported after release 9.0 and you need to use AutoPass licenses if you use these releases.

  You can replace your SafeNet Sentinel licenses with AutoPass licenses starting with release 8.0. Contact Micro Focus Customer Care for further information.

- The HOSTSIGNS Compiler directive is no longer supported. Micro Focus recommends that you use the following Compiler directives instead: SIGN-FIXUP, HOST-NUMMOVE, and HOST-NUMCOMPARE. This is a change since version 3.0 of this product.

Additional Software Requirements

To ensure full functionality for some features, you might be required to obtain and install additional third-party software.

Click here to see this information on the Product Documentation pages on Micro Focus Customer Care.

Installing Visual COBOL Development Hub

Before Installing

Downloading the Product

1. Log into the Software Licenses and Downloads (SLD) site at *https://sld.microfocus.com/mysoftware/download/downloadCenter*.
2. Select your account and click **Entitlements**.
3. Search for the product by using any of the available search parameters.
4. Click **Show all entitlements**.
5. Click **Get Software** in the Action column for the product you want to download or update.

   In the **File Type** column, you see entries for "Software" for any GA products, and "Patch" for any patch updates.
6. Click **Download** on the relevant row.

Issues with the Installation on UNIX and Linux

Installing on Red Hat 8.x s390

On Red Hat 8.x s390, the RPM non-root install method is not supported due to errors given by cpio. You receive the following messages:

```
error: unpacking of archive failed on file /usr/lib/.build-id/1b/
af99f26c6b4c00ca499a3199a574b73aeb3854;6092b79c: cpio: symlink failed - No
such file or directory
error: Micro_Focus_cobol_server-7.0.0.0-100700.s390x: install failed
```

As a result, the installation in this scenario is incomplete.

Installing while using AFS/Kerberos authentication

If you are using AFS/Kerberos authentication to log onto your Linux system then you need to ensure you have a local user ID which SOA and Visual COBOL components of the product can use. This user ID must be set up prior to running the installer. When running the installer you need to specify `-ESadminID=`*`[User ID]`* on the command line so it is used by the installer.

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.

System Requirements for Visual COBOL Development Hub

Hardware Requirements

The disk space requirements are approximately:

Platform	Installer type	Setup file size	Disk space required for the installation	Disk space required for running the product	Licensing technology
POWER running AIX	Micro Focus	530 MB	2.12 GB	1.06 GB	41 MB
HP IA	Micro Focus	911 MB	3.65 GB	1.83 GB	79 MB
System Z running Red Hat Linux	Micro Focus	437 MB	1.75 GB	875 MB	39 MB
x86-64 running Red Hat Linux	Micro Focus	615 MB	2.47 GB	1.23 GB	50 MB
SPARC running Solaris	Micro Focus	498 MB	2.00 GB	996 MB	42 MB
x86-64 running Solaris	Micro Focus	469 MB	1.88 GB	938 MB	33 MB
System Z running SUSE SLES	Micro Focus	319 MB	1.28 GB	638 MB	39 MB
x64 running SUSE SLES	Micro Focus	435 MB	1.75 GB	870 MB	50 MB
x64 running Ubuntu	Micro Focus	440 MB	1.77 GB	880 MB	50 MB
x86-64 running CentOS	Micro Focus	615 MB	2.46 GB	1.23 GB	50 MB

Operating Systems Supported

For a list of supported operating systems, see *Supported Operating Systems and Third-party Software* in your product documentation.

On SUSE 12 and 15, and on Ubuntu, you can only install and use the 64-bit version of this product.

Software Requirements

Note: This product includes OpenSSL version 1.1.1k-mf6 (modified).

The following topic lists the software requirements for Visual COBOL Development Hub.

- *Software required by the setup file*

- *Libraries required by the setup file*
- *Required environment variables*
- *License Manager requirements*

Software required by the setup file

- The "awk", "ed", "ps", "sed", tar", "sed" and "which" "tar" utilities must be installed and added to the PATH.
- `pax` - 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 8.1, `pax` is no longer installed by default. You must install the `spax` version found in the OS ISO. Use the `yum install spax` command.
- If SELinux is installed and you plan to use anything other than core COBOL functionality, or plan to use Enterprise Server within an environment with ASLR enabled, the "SELINUX" configuration must be disabled. To do this, set `SELINUX=disabled` in `/etc/selinux/config`.
- 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.

Libraries required by the setup file

The following table lists the required libraries for Red Hat and SUSE Linux platforms. The setup file checks that both the 32-bit and 64-bit libraries listed below are installed on both 32-bit and on 64-bit Operating Systems for this product to install and work correctly.

If installing on a 64-bit OS, the 32-bit libraries are not installed by default and must be installed before you start the installation.

The following table shows which of the required libraries are not installed by default on the specified platforms - X indicates the libraries are missing.

Library	Platform								
	32-bit	64-bit	s390	SUSE 12[1]	SUSE 15	Red Hat 7	Red Hat 8	CentOS 7 and 8	Ubuntu 18 and 20
glibc[2]	X	X	X			X	X	X	
libgcc	X	X	X			X	X	X	
libstdc++	X	X	X			X	X	X	
glibc-devel	X	X	X			X	X		
gcc[3, 4]	X	X	X	X	X	X	X	X	
cpp[3]		X				X	X	X	
libgc1c2		X							X

- Libraries marked with an 'X' are not included in the platform and need to be installed separately.
- [1]On SuSe 12 or 15, you can only install the 64-bit version of this product. The glibc-locale-32bit library is still required by the SafeNet Sentinel licensed components.
- [2]On 64-bit Red Hat 7, you only need to install glibc-2.17*.x86_64 and glibc-2.17*.i686.
- [3]On Red Hat, these libraries are required to enable COBOL to compile.
- [4]On Red Hat, only the 64-bit gcc libraries are required.

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

Required environment variables

- Set the JAVA_HOME environment variable. When installing the product, set this variable to a 64-bit Java installation or the installation terminates. For example, execute the following:

  ```
  export JAVA_HOME=java_install_dir
  ```

  where *java_install_dir* is the path to the JAVA installation directory such as `/usr/java/javan.n`
- 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. If you do not set it as specified here, the installation will run but you might experience unexpected behavior from the installer.

  The LANG settings are English and Japanese only so set it to one of the following locales:

  ```
  C, default, en_GB, en_GB.UTF-8, en_US, en_US.UTF-8
  ```

  ```
  ja_JP, ja_JP.SJIS, ja_JP.UTF-8, ja_JP.eucJP, ja_JP.eucjp, ja_JP.sjis,
  ja_JP.ujis, ja_JP.utf8, japanese
  ```

  You can set LANG before running the setup file as follows:

  ```
  export LANG=C
  ```

  Alternatively, add it to the start of the setup command line:

  ```
  LANG=C ./setupfilename
  ```

  See *Using the LANG Environment Variable* for details.

License Manager requirements

- For local servers, you do not need to install the Micro Focus License Administration tool separately, as the setup file installs a new Visual COBOL client and a new licensing server on the same machine.
- If you have any network license servers, you must update them before you update the client machines.
- If you are upgrading from Visual COBOL release 2.2 or earlier, uninstall the license manager before installing the product.

You can download the new version of the license server software by following these steps:

1. Log into the Software Licenses and Downloads (SLD) site at *https://sld.microfocus.com/mysoftware/download/downloadCenter*.
2. Select your account and click **Downloads**.
3. Select a product and a product version from your orders.
4. In the list of software downloads, locate the **License Manager**.
5. Click **Download** to download an archive with the installers.
6. Run the installer suitable for your Operating System to install License Manager on your machine.

Basic Installation

The instructions in this section apply when you are performing a basic installation of this product for the first time. If you are an administrator, you can perform a basic installation on a local machine before performing a more advanced installation when rolling out the product to developers within your organization.

For considerations when installing this product as an upgrade, for additional installation options or non-default installations, see *Advanced Installation Tasks* in your product Help.

Installing Visual COBOL Development Hub

Micro Focus offers two types of installers on UNIX and Linux - a proprietary Micro Focus installer for installing on UNIX and Linux and a standard RPM (RPM Package Manager) installer for installing on Linux. See your product Help for instructions on how to use the RPM installer.

Before starting the installation, see *Software Requirements*.

These are the steps to install this product using the Micro Focus installer:

1. Give execute permissions to the setup file:
   ```
   chmod +x setup_visualcobol_devhub_7.0_platform
   ```
2. Run the installer with superuser permissions:
   ```
   ./setup_visualcobol_devhub_7.0_platform
   ```
   If you don't run this as superuser you will be prompted to enter the superuser password during the installation.

   Note: On Ubuntu, the prompt for superuser password is not available. On this platform you must either log in as root or use the `sudo` command to get root permissions before you run the installer.

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

Enterprise Server System Administrator Process

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.

You must supply the user ID at the command line - specify `-EsadminID=[ ID ]` as part of your command.

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` and follow the onscreen instructions.

SafeNet Sentinel considerations

- 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_7.0_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, you can rerun the `MFLicenseServerInstall.sh` from within the `$COBDIR/safenet` folder with the force command line option:
  ```
  cd $COBDIR/safenet
  ./MFLicenseServerInstall.sh force
  ```

AutoPass Licensing considerations

- The installation of this product could affect the AutoPass licensed components running on your machine. During installation, the licensing shuts down to allow files to be updated. To ensure the processes running on your machine are not affected, you need to use the -skipautopass option, which skips the installation of AutoPass:

  ```
  ./setup file -skipautopass
  ```
- To protect the AutoPass installation from accidental updating, you can create an empty file named `SKIP_AUTOPASS_INSTALL` in `/opt/microfocus/licensing` as follows:

  ```
  touch /opt/microfocus/licensing/SKIP_AUTOPASS_INSTALL
  ```

  While the file is present, the AutoPass installer does not make changes to the installation or shutdown the running license daemons. If licensing needs to be updated later, you can rerun the `MFLicenseServerInstall.sh` from within the `$COBDIR/safenet` folder with the force command line option:

  ```
  cd $COBDIR/safenet
  ./MFLicenseServerInstall.sh force
  ```

Advanced Installation Tasks

This section includes instructions about how to perform a non-default installation, install this product as an upgrade, or about how to install the additional components.

The advanced installation tasks include:

- *Installing as an Upgrade* - included in these Release Notes
- *Command line installation options* - included in these Release Notes
- *Installing using an RPM installer on Linux* - available in the product Help and in the Micro Focus Infocenter

Click here to see this information on the Product Documentation pages on Micro Focus Customer Care.

Installing as an Upgrade

This release works concurrently with the previous version of Visual COBOL Development Hub, so you do not need to uninstall it.

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

1. Execute the following command:

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

   Note: You can use variables when specifying an absolute path for `–installlocation`. For example, the following examples are equivalent:

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

   ```
   -installlocation="$HOME/installdir"
   ```
2. Execute cobsetenv to set the environment and point to the new install location:

   ```
   . <product-install-dir>/bin/cobsetenv
   ```

   Note: `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.

Preserving the MFDS and Enterprise Server region configuration

The following information applies when you are upgrading from release 6.0.

If you install this release to the same install location as release 6.0, the product in the current location is moved to a backup directory name.

For example, if the 6.0 product is installed in the default install location, `/opt/microfocus/VisualCOBOL`, during the upgrade it is moved to `/opt/microfocus/VisualCOBOL.BKP.YYYY-MM-DD.HH:MM:SS`. The new release will be installed in `/opt/microfocus/VisualCOBOL`.

Note that your original installation might include some files that you changed or added to, and you need those changes preserved in the new installation.

During the upgrade, the installer moves a number of changed files to a different configuration location and symbolically links them back into the new release install location. The configuration location is one of the following:

- The default config location is `/opt/microfocus/config/`.
- For non-root installation, the default location is `$HOME/microfocus/config/`.
- To specify your own configuration location, run the setup file with the following command-line option: `-mfconfiglocation=[`*`location`*`]`

The setup file creates a directory in the configuration location using the sum of the value of the $COBDIR path. This is so that each configuration area is unique to each product installation. The configuration files and directories are then placed in this COBDIR hash-numbered directory. In the examples below, the install location generates a hash of `12345`.

The file `/opt/microfocus/config/12345/COBDIRlocation.txt` details the COBDIR the configuration area is associated with.

Currently, the setup file only moves the following files and directories:

Source	Destination
`secrets`	`/opt/microfocus/config/12345/secrets/`
`commonwebadmin.json`	`/opt/microfocus/config/12345/escwa/commonwebadmin.json`
`mfdsacfg.xml`	`/opt/microfocus/config/12345/mfds/mfdsacfg.xml`
`mfds`	`/opt/microfocus/config/12345/mfds/mfds/`

If you have changed any other files in the original installation, you need to be copy these manually from the backup directory, `/opt/microfocus/VisualCOBOL.BKP.YYYY-MM-DD.HH:MM:SS`, into the install location after the upgrade installation is complete.

Visual COBOL Development Hub Installation Options

Installing into a different location

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

```
./setup_visualcobol_devhub_7.0_platform -installlocation="full path of new location"
```

Note: You can use variables when specifying an absolute path for `–installlocation`. For example, the following examples are equivalent:

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

Configuring the Enterprise Server installation

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

-ESsysLog	Use this to enable ("Y") or disable ("N") Enterprise Server system logging. Logging is enabled by default. Log files are saved in `/var/mfcobol/logs`.
-ESadminID	Sets the Enterprise Server System Administrator Process User ID from the command line - for example, `-ESadminID="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`.

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. You need to execute the commands as root:

```
–silent -IacceptEULA
```

For example, execute:

```
setup_filename –silent -IacceptEULA
```

After Installing

- Check the *Product Documentation* section of the *Micro Focus Customer Support Documentation Web site* for any updates to the documentation which might have been uploaded.

Setting up the product

If you have installed the product to a directory other than the default one, you need to set the environment as described below.

Note: The default directory is /opt/microfocus/Visual COBOL/.

1. To set up your product, execute:
   ```
   . <product-install-dir>/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.

Note: If there are two or more products installed on the machine or the products are installed in non-default locations then the `/opt/microfocus/logs/MicroFocusProductRegistry.dat` data file can be used to find the product locations.

The file contains the following entries:

```
[ Install Location ]#[ Date of Installation ]#[ Product Name ]
```

For example:

```
/home/user1/VisCobol30#2017-01-20#Micro Focus Visual COBOL Development Hub 3.0
/home/user1/CobolServer30#2017-01-20#Micro Focus COBOL Server 3.0
```

Configuring the Remote System Explorer Support

Note: The following only applies if you are using Visual COBOL Development Hub with Visual COBOL for Eclipse.

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 8 or later.
- The `as` (assembler) and `ld` (linking) programs on the path, as specified by the PATH environment variable.

The daemon can be run with or without parameters. If no parameters are specified, the process relies on the default values in `$COBDIR/remotedev/rdo.cfg`.

Use the following syntax to start the daemon (with super-user authority) on the remote host:

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

where:

- *<port>* is the port number that the daemon should use to listen for connections from Eclipse. If no value is given, it will default to the value specified in `$COBDIR/remotedev/rdo.cfg`; the default value on installation is 4075.

  Example: To start the daemon listening on port 4999:

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

  This command will override the default port in `rdo.cfg`.
- *<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. If no values are given, the range defaults to that specified in `$COBDIR/remotedev/rdo.cfg`; the default range on installation is 10000-10003.

Example: To instruct the daemon (on port 4999) to instantiate servers using a range of ports 4090-4993:

```
$COBDIR/remotedev/startrdodaemon 4999 4090-4993
```

This command will also override the default ports in `rdo.cfg`.

If the server has an active firewall, it is important that these ports are open in the firewall settings. You can use the `configrdo` utility to set the default ports in `rdo.cfg` to ones already open in the firewall. If you are running on Red Hat 7.2 (or later) or CentOS 7.2 (or later), you can also use the utility to open the required ports in the active firewall. See *Configuring the firewall* for more information.

Stopping the Daemon

To stop the daemon, type the following command with super-user authority:

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

Configuring the firewall

If the server on which Visual COBOL Development Hub is installed is running a firewall, you must ensure that certain ports and services are allowed through so that Eclipse running on a client machine can communicate with it.

To ensure successful communication between the IDE and Visual COBOL Development Hub when a firewall is active, use the `configrdo` utility after initial setup or if you experience problems establishing a connection between the two.

Tip: If you run the client-side and/or server-side connection diagnosis tools, these include a number of tests relating to firewall configuration, and can indicate any problems with the current firewall settings.

Use `configrdo` to configure the following settings:

- Set the default RDO daemon and server ports used by Visual COBOL Development Hub.
- Open additional ports in the firewall.

  This option is only available on the following platforms: Red Hat 7.2 and later, or CentOS 7.2 and later.
- Add the ssh and samba services to the firewall.

  This option is only available on the following platforms: Red Hat 7.2 and later, or CentOS 7.2 and later.

These changes can be temporary (for the duration of the current firewall being active), or be made permanent (so that they persist after a system reboot). If you are not running any of the supported platforms listed above, use your operating system's firewall commands to perform the equivalent functions.

To configure the firewall settings

To be able to run this utility:

- You must have super-user authority (e.g. root user)
- $COBDIR must be set to the value of the product install folder for Visual COBOL Development Hub.

1. From a shell command, run the following:

   ```
   $COBDIR/remotedev/configrdo
   ```
2. At the `Daemon port` prompt, enter the port number that the daemon should listen on, or press **Enter** to accept the default.

   Note: The default settings for these port prompts are specified in the `rdo.cfg` configuration file.

   The `Server range` is a range of port numbers that a required RDO server will be started on when the daemon receives a request.

3. At the `Server range low port` prompt, enter the starting number of the server port range and press **Enter**, or press **Enter** to accept the default.
4. At the `Server range high port` prompt, enter the ending number of the server port range and press **Enter**, or press **Enter** to accept the default.

   The defaults are written to the `rdo.cfg` configuration file.

   If you are running this utility on Red Hat 7.2 (or later) or CentOS 7.2 (or later), an additional prompt is displayed; otherwise, the utility closes.
5. At the `Do you want to configure the firewall` prompt, press **Y** and then **Enter** to configure further firewall settings, or press **N** and then **Enter** to close the utility. If you selected **Y**, the configured firewall zones are listed.
6. To configure an existing zone, press the corresponding number and then **Enter**, or press **Enter** for the default zone (as indicated at the end of the prompt).

   Note: At this point, you can also create a new zone: press **N** and then **Enter**, and then type the new zone name and press **Enter**. The new zone is listed, and you can now select its corresponding number to configure it.

   The current firewall status is displayed, where it checks if the currently specified ports are open in the firewall; if they are not, the utility adds them to the firewall settings.
7. If you need to open more ports, press **Y** and then **Enter**, and then enter either a single port number, or a range, and then press **Enter**.

   The additional ports are opened.
8. If either of the ssh and samba services are not running in the firewall zone, you are prompted to add them: press **Y** and then **Enter** or **N** and then **Enter**, as appropriate, for each service.

   Note: If the service is already running, you are not prompted.

   An overview of the firewall settings is displayed.
9. To save the changes permanently (that is, even after the firewall is restarted), press **Y** and then **Enter**; to save the settings for the firewall until it is next stopped, **N** and then **Enter**.

   The utility is closed.

Note: If you need to remove any ports or services you have added to the firewall, use the `firewall-cmd` utility that is part of the operating system.

Enabling SHIFT-JIS

By default, support for the character encoding for the Japanese language, Shift-JIS, is not available on Ubuntu and on RedHat OS version 8 or later.

You need to generate the Shift JIS locale on your machine to be able to execute Shift-JIS applications on these platforms. You can do this as follows:

1. On RedHat 8, ensure that the `glibc-locale-source` package is installed.
2. Execute the following command with superuser rights in order to generate a Shift-JIS locale using the charset:
   ```
   sudo localedef -f SHIFT_JIS -i ja_JP ja_JP.sjis
   ```
3. Set the COBUTF8 environment variable to the generated Shift-SJIS locale and LANG to a UTF8 locale:
   ```
   export COBUTF8=ja_JP.sjis
   export LANG=ja_JP.UTF-8
   ```
4. Run the cobutf8 utility:
   ```
   cobutf8 <command>
   ```

   See your product documentation for more details about cobutf8.

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_VisualCOBOLDevelopmentHub7.0.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.
- 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 Customer Care*.

To buy and activate a full unlimited license

To buy a license for Visual COBOL, contact your sales representative or Micro Focus Customer Care.

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

You need either a license file (with a `.mflic` extension for Sentinel RMS licenses or an `.xml` extension for AutoPass licenses) or an authorization code which consists of a string of 16 alphanumeric characters (Sentinel RMS licenses only). You need to install AutoPass licenses into the existing Micro Focus License Administration tool, and not in the AutoPass License Server.

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

Note: Authorization codes are only available with Sentinel RMS licensing.

Authorizing your product when you have an Internet connection

Note:

- This topic only applies if you have an authorization code. Authorization codes are only available with Sentinel RMS licensing.
- It is not possible to install licenses remotely. You must be logged into the machine on which you are installing the licenses.

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. Authorization codes are only available with Sentinel RMS licensing.

This method of authorization is required if the machine you want to license does not have an Internet connection or if normal (automatic) authorization fails.

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

- Access to a computer which is connected to the Internet.
- 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 entering 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 entering 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 Customer Care.

Updates and Customer Care

Our Web site provides up-to-date information 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:

- Product Updates on *Software Licenses and Downloads*, where you can download fixes and documentation updates.

  1. Log into the Software Licenses and Downloads (SLD) site at *https://sld.microfocus.com/mysoftware/download/downloadCenter* .
  2. Select your account and click **Entitlements**.
  3. Search for the product by using any of the available search parameters.
  4. Click **Show all entitlements**.
  5. Click **Get Software** in the Action column for the product you want to download or update.

     In the **File Type** column, you see entries for "Software" for any GA products, and "Patch" for any patch updates.
  6. Click **Download** on the relevant row.
- The *Examples and Utilities* section of the Micro Focus Customer Care Web site, including demos and additional product documentation. Go to *https://supportline.microfocus.com/examplesandutilities/index.aspx*.
- The *Support Resources* section of the Micro Focus Customer Care Web site, that includes troubleshooting guides and information about how to raise an incident. Go to *https://supportline.microfocus.com/supportresources.aspx*

To connect, enter *https://www.microfocus.com/en-us/home/* in your browser to go to the Micro Focus home page, then click **Support & Services** > **Support**. Type or select the product you require from the product selection dropdown, and then click **Support Login**.

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, *https://www.microfocus.com/support-and-services/contact-support/*. 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.

Also, visit:

- The Micro Focus Community Web site, where you can browse the Knowledge Base, read articles and blogs, find demonstration programs and examples, and discuss this product with other users and Micro Focus specialists. See *https://community.microfocus.com*.
- The Micro Focus YouTube channel for videos related to your product. See *Micro Focus Channel on YouTube*.

https://www.microfocus.com/en-us/resource-center/webinar

Information We Need

If your purpose in contacting Micro Focus is to raise a support issue with Customer Care, you should collect some basic information before you contact us, and be ready to share it when you do.

Creating Debug Files

If you encounter an error when compiling a program that requires you to contact Micro Focus Customer Care, 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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