



extend Interoperability Suite 10.5.0

Release Notes

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extend 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 links to external web sites. Micro Focus cannot be responsible for the contents of the website or for the contents of any site to which it might link. Web sites by their nature can change very rapidly and although every attempt is made to keep links up-to-date, Micro Focus cannot guarantee that external links will always work as expected.

extend System Requirements



Note: This product includes software developed by the University of California, Berkeley and its contributors.

Hardware Requirements

extend software has the following requirements:

For Windows:

- The amount of disk space needed to install the ACUCOBOL-GT development system is typically less than 35 MB.
- AcuBench® requires at least 20 MB for installation.
- You need an additional 40 MB to install all of the other extend products.
- Use of .NET controls with the runtime and thin client requires .NET Framework 4.0.

For all other platforms:

The amount of disk space needed to install all extend products is typically less than 35 MB.

Supported Operating Systems

All supported operating systems are both 32- and 64-bit unless otherwise noted.

Operating System	Processor
AIX 6.x	PowerPC
AIX 7.x	PowerPC ¹
FreeBSD 9.x	x86-64 ^{2,3}
HP/UX 11v3	Itanium-2
HP/UX 11v3	PA-RISC ³
Linux libc 2.5	x86-64
Linux libc 2.5	PowerPC ⁵
Solaris 10	SPARC
Solaris 11.3	SPARC
Windows XP	x86-64 ^{2,3,4}
Windows Server 2003	x86-64 ^{2,3,4}
Windows 7	x86-64
Windows 8.1	x86-64
Windows 10	x86-64
Windows 11	x86-64
Windows Server 2008 R2 SP1	x86-64
Windows Server 2012 R2	x86-64
Windows Server 2016	x86-64
Windows Server 2019	x86-64

Operating System	Processor
Windows Server 2022	x86-64
¹ For the AIX 7.1 platform, the minimum requirement is version 7.1 Technology Level 4 (7100-04) ; for the AIX 7.2 platform, the minimum requirement is version 7.2 SP1. ² 32-bit only. ³ The extend Interoperability Suite version 10.4.1 is the final version to provide support for this platform. ⁴ AcuBench 10.4.1 no longer supports this and earlier Windows platforms because they do not support several third-party libraries used by AcuBench. ⁵ The extend Interoperability Suite version 10.5.0 is the final version to provide support for this platform.	

extend Web Help

extend Web Help is supported in most currently available browsers.

Additional Requirements

General requirements

Linux-based platforms require `glibc` version 2.5 or later.

AcuServer:

- Each server machine must be networked to UNIX, Linux, or Windows clients with TCP/IP. TCP/IP is not sold or supplied by Micro Focus.
- All servers must have a copy of the AcuServer license management file.
- Windows clients can run any TCP/IP software that uses a `WINSOCK2` compliant `ws2_32.dll`.
- Unless you have an unlimited license for AcuServer, all UNIX servers must run the current version of `acushare`, which is included on the AcuServer distribution media.
- All servers must have a copy of the license file activated by the product installation script. This file is named `acuserve.alc`.
- Client machines must have an ACUCOBOL-GT AcuServer-enabled runtime. All Windows runtimes Version 5.0 and later are AcuServer-enabled. To verify that your UNIX runtime is AcuServer-enabled, type `runchbl -v` in a Command prompt and look for this line.

```
AcuServer client
```

AcuBench:

- Intel Pentium III CPU, 300 MHz; Intel Pentium IV, 2 GHz recommended
- 128 MB of RAM recommended
- 120 MB of available hard disk space recommended
- mouse
- 800 x 600 VGA display or better; 1024 x 768 VGA display recommended

AcuToWeb:

gcc versions

AcuToWeb requires the following gcc versions or later on the following platforms:

Platform	Minimum requirement
Linux	GCC 4.8.0

Linux-based platforms

For Linux-based platforms, the following packages must be added:

Debian-based	libc6:i386
--------------	------------

	libstdc++6:i386
	zlib1g:i386
RHEL/Centos-based	libstdc++.i686
	zlib.i686
	libgcc.i686
	glibc.i686
SUSE-based	libstdc++6-32bit
	libgcc_s1-32bit
	libz1-32bit

Supported browsers

The following browsers are supported for AcuToWeb 10.5.0:

Chrome version 104 or later
 Edge version 104 or later
 Firefox version 103 or later
 Safari version 15 or later

AcuSQL:

- Your COBOL application must run on a Windows system or a UNIX system supported by Micro Focus. Unless otherwise indicated, the references to Windows in this manual denote supported Windows operating systems. Where necessary, individual versions of those operating systems are referred to by their specific version numbers.
- AcuSQL must be installed with the ACUCOBOL-GT development system on your Windows or UNIX system.
- If using a database other than Microsoft SQL Server, you must have a working ODBC level 2 API connection to your database, including any required networking software support.
- For SQL Server, if running the AcuSQL interface to Microsoft SQL Server, you must have the SQL Server client software from Microsoft. Use the Query Analyzer to see if the SQL Server client software from Microsoft is on your system. For information on opening the Query Analyzer, see the SQL Server client documentation. If the Query Analyzer opens and you are able to connect to the database, the client libraries are most likely all present. Your SQL Server data source may be hosted on one or more of the supported server operating systems.
- If you are running the AcuSQL interface to MySQL, you must have the following software:
 - MySQL 5.0 Database Server Version 5.0.18 or later (Generally Available release). Testing was done with MySQL 5.0.18 Standard.
 - MySQL Connector/ODBC Version 3.51.11 or later (Generally Available release). Testing was done with the `libmyodbc3-3.51.12.so` library. This file is available from <http://dev.mysql.com>.

You can check the version of your server by connecting using `mysql`. The version prints upon connection. For example:

```
[testing ]: mysql
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 29 to server version:
5.0.18-standard
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.
```

Once in MySQL, you can also use the following:

```
mysql> select version();
+-----+
| version() |
+-----+
```

```
| 5.0.18-standard |  
+-----+  
1 row in set (0.09 sec)
```

- If your application accesses DB2 data, IBM's DB2 Connect™ software is recommended. Access to DB2 databases has been tested with DB2 Connect. However, any vendor's properly configured ODBC level 2 API connectivity software should work. Your DB2 data source may be hosted on one (or more) of the supported operating systems.

Acu4GL (for ODBC) driver requirements:

Your ODBC driver must include the following functions:

- all Core ODBC driver functions
- the Level 1 function SQLColumns
- the Level 1 function SQLTables

Depending on the method of record locking you choose, your driver may also need to support some of the following function calls:

- SQLSetStmtOption
- SQLSetScrollOptions
- SQLExtendedFetch
- SQLSetPos

See A_ODBC_LOCK_METHOD in the extend online help for more information.

To test the capabilities of your ODBC driver, we have included a driver test program on your Acu4GL for ODBC installation disks. You can also consult your driver documentation to ensure that it meets these requirements.

Windows Installation

Before Installing

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Linux libc 2.5	x86-64
Linux libc 2.5	PowerPC ⁵
Solaris 10	SPARC
Solaris 11.3	SPARC
Windows XP	x86-64 ^{2,3,4}
Windows Server 2003	x86-64 ^{2,3,4}
Windows 7	x86-64
Windows 8.1	x86-64
Windows 10	x86-64

Operating System	Processor
Windows 11	x86-64
Windows Server 2008 R2 SP1	x86-64
Windows Server 2012 R2	x86-64
Windows Server 2016	x86-64
Windows Server 2019	x86-64
Windows Server 2022	x86-64
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Linux	GCC 4.8.0

Linux-based platforms

For Linux-based platforms, the following packages must be added:

Debian-based	libc6:i386 libstdc++6:i386 zlib1g:i386
RHEL/Centos-based	libstdc++.i686 zlib.i686 libgcc.i686 glibc.i686
SUSE-based	libstdc++6-32bit libgcc_s1-32bit libz1-32bit

Supported browsers

The following browsers are supported for AcuToWeb 10.5.0:

- Chrome version 104 or later
- Edge version 104 or later
- Firefox version 103 or later
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```

```
5.0.18-standard
Type 'help;' or '\h' for help. Type '\c' to clear the buffer.
```

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mysql> select version();
+-----+
| version() |
+-----+
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- SQLSetStmtOption
- SQLSetScrollOptions
- SQLExtendedFetch
- SQLSetPos

See A_ODBC_LOCK_METHOD in the extend online help for more information.

To test the capabilities of your ODBC driver, we have included a driver test program on your Acu4GL for ODBC installation disks. You can also consult your driver documentation to ensure that it meets these requirements.

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.

License Files for Windows

You may request a license file for one or more users. The number of users (user limit) is set in your license agreement with Micro Focus.

When you receive your products, the package includes product codes and product keys for every product you ordered. You must have the product codes and product keys to create the license file.

When you install or update your license file, place it in the appropriate directory for your version of Windows. The location is:

```
C:\ProgramData\Micro Focus\extend\x.x.x\x86\product-license.alc
```

(Where x.x.x is the product version number.)



Note: This location is new to extend 9.0 and later, and differs from past versions of extend products. See *Appendix C - Changes Affecting Previous Versions* in the *ACUCOBOL-GT Appendices* manual for details.

When you have multiple users or products, you may copy the license file onto each machine containing the corresponding product or place the products and license file on a shared drive. Each product must be able to locate its license file in order to function.



Note: The ACUCOBOL-GT Transaction Server runtime license file is named `wrun32.11c`. If you are using other *extend* products, the license files must be concatenated into a special file.

The Activator Utility

The Activator Utility automates the process of creating a license file.

During installation, select **Install License Activator** on the Installation Settings page to install the Activator Utility (`activator.exe`). It is installed in the `\AcuGT\bin` sub-directory of the installation directory.



Note: Always use the version of the Activator supplied with the version of the product you have installed.

To create the required license files during installation, select **Launch License Activator** on the Installation Settings page. This will launch the Activator Utility when the selected products have installed, enabling you to enter the product code and key pairs required to create the license files.

You can also create license files after the installation by running the Activator Utility (`activator.exe`) from the location detailed above or from the Start menu.

During product installation, if the Activator detects the presence of an existing license file, the extension of the existing file is changed before a new license file is created. For example, `runcbl.alc` is renamed `runcbl.al!`. If the Activator is unable to rename the existing license file, it quits with an error message, and no new license file is created. If a license file with the back-up extension already exists, the Activator attempts to overwrite it. If that fails, the Activator quits with an error message and no new license file is created. On Windows platforms, file attributes such as Read Only are also preserved.

Changing or Updating a Windows License File

If you need to alter your license file information, contact your Micro Focus *extend* representative for updated product code(s) and product key(s). When you receive them, launch the Activator and enter the new information as prompted.



Note: If you have copied a license file to a non-default directory, remember to replace that file with a copy of the updated license file.

Installation on Windows Platforms

The Windows installation requires little interaction; the setup program copies the files into a directory you designate, or `C:\Program Files\Micro Focus\extend x.x.x` (where x.x.x is the version number) by default. On 64-bit machines, 32-bit executables are installed to `C:\Program Files (x86)`.

Before you run an installation, you should ensure that you have your product codes and product keys, and the product media to hand. Refer to the appropriate installation instructions below.

Also, you should ensure that you do not have another version of the extend Interoperability Suite referenced in the PATH system environment variable, as having more than one version specified may cause unexpected results.

After the installation is complete, if you have installed both the compiler and runtime, you can begin to compile and execute your COBOL programs. Basic compilation and execution techniques are described in *Compiling Your Programs* and *Running Your Programs*.



Note: If you move or delete any .dll files that have been installed, your products may not run as expected.

AcuBench and AcuXDBC™ must be installed locally (on the client). Server-side products such as AcuServer™, AcuXDBC™ Server and AcuConnect® are to be installed only on server machines.

Supported Windows Platforms

For a full list of the supported operating systems, see [extend System Requirements](#).

Installation Steps - Windows

These are the steps to install this product:

1. From the directory where you downloaded the product, run the .exe file and follow the wizard instructions to install.



Note: We suggest that you run the .exe as an administrator to ensure that you can configure components to start as Windows services where appropriate.

2. On the **Select Installation Folder** page, click **Browse** and select installation directories for 32-bit and 64-bit (if applicable) products. Alternatively, you can accept the default location(s), then click **Next**.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

3. On the **Product Selection** page, select the required products, then click **Next**.



Notes:

- You must have product codes and keys to activate each product; however, you can install all products now, and activate those products for which you do not have a license at a later date. (Be aware that if you attempt to use products for which you do not have a license, you might receive error messages indicating that no license file is available.)
- To enable your Thin Client applications to use the WEB-BROWSER2 control type, check **ACUCOBOL-GT WEB-BROWSER2** to ensure installation of the WEB-BROWSER2 control files.
- Select **Documentation** on this page to install and access the product user guides.
- The 64-bit Windows installer provides an option to install the 32-bit or 64-bit AcuBench or both. If you select both, the AcuBench .pjx files are associated with the 32-bit AcuBench; otherwise the .pjx files are associated with the AcuBench you selected.

4. On the **Installation Settings** page, select one or more of the following, then click **Next**:

Select	To
Install License Activator	Install a copy of the License Activator
Launch License Activator	Launch the License Activator at the end of the installation process
Start AcuServer	Start AcuServer as a service
Start AcuConnect	Start AcuConnect as a service
Start AcuToWeb ¹	Start AcuToWeb as a service

Select	To
¹ Also starts AcuConnect automatically as it is required for AcuToWeb. Also, the 64-bit installer provides an option to start the 32-bit or 64-bit AcuToWeb service.	

 **Notes:**

- Starting AcuServer, AcuConnect, or AcuToWeb as a service only occurs if you have run the .exe installer with administrator privileges (see note above).
- If a previous version of any of these products is already running on its default port, an additional prompt is displayed, asking you if you want to shut down that service; you must answer **Y** if the new version is to start - see *Notes on AcuConnect, AcuServer, and AcuToWeb Installation* for more details.

If you selected **Launch License Activator** on the **Installation Settings** page, the **Activator Wizard** appears.



5. Type your first product code and key in the appropriate fields.

The License Activator is case-insensitive and displays only uppercase characters. It also ignores embedded spaces and separating characters. Product codes and keys do not contain the letters "O" or "I".

 **Caution:** If you have a license for both the Windows runtime (`wrun32.exe`) and an Alternate Terminal Manager (ATM) runtime (`run32.exe`) for the same machine, be aware that the Activator Utility creates a license file named `wrun32.alc` for each of them. To avoid a situation in which the Activator Utility overwrites the license file for the second runtime:

- Make a backup copy of the Windows runtime license file prior to creating (and renaming) the ATM runtime license.
- Create the ATM runtime license and rename it to match the executable (change `wrun32.alc` to `run32.alc`) before creating the Windows runtime license.

6. If you have more than one code and key pair to enter, select **More** after typing the first code/key pair. Repeat this process until you have entered all code and key pairs, then click **Finish**.

Each time you press **More**, the License Activator creates a separate license file for the product code and key you entered and returns you to the code and key entry screen.

7. Click **Finish** on the **Installation Complete** page to complete the installation.



Note: If license activation was successful, but you get a message during product startup indicating that the license file cannot be found, the license file may not be in the correct directory. Products search for license files in the following order:

1. The default directory, which is determined by the License Activator by examining the value of the ALLUSERSPROFILE system environment variable, and adding the version and platform information to that location. For example:

```
C:\ProgramData\Micro Focus\extend\x.x.x\x64\wrun32.alc
```

Where *x.x.x* is the product version number.

2. If the product cannot find the license file in the default location, it then looks in the directory containing the corresponding executable file; for example, the product searches for `wrun32.alc` in the directory containing `wrun32.exe`.

Silent Installation

On Windows platforms, you can perform a silent installation of the extend Interoperability Suite using the `msiexec` command, which requires that you use the `.msi` install package that is shipped with your product. This must be run from a command line prompt that has administrative privileges.

The syntax required is:

```
msiexec /i <msi-file> INSTALLDIR=<install-directory> [INSTALLDIR64=<64-bit-install-directory>] ADDLOCAL=<product1,product2,...> [WINDOWSVERSION=<Win-version>] /qn [/L*v <log-file>]
```

where:

<msi-file>

The `.msi` installation file. This could be a 32-bit or a 64-bit version.

<install-directory>

The directory in which the product will be installed.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

<64-bit-install-directory>

The directory in which the 64-bit products will be installed. This is mandatory if you are using the 64-bit installer, because it installs both 32-bit and 64-bit versions of some products, using `<install-directory>` for the 32-bit versions and `<64-bit-install-directory>` for the 64-bit versions.



Restriction: If you specify a mapped drive, it must map to a local directory; remote mapped drives are not supported.

<product1,product2,...>

A list of products and services to be installed; see *Product Variables for Silent Installation* for the comprehensive list of options.

<Win-version>

This is required for Windows versions 8 and later, in order to create the Extend Start menu. The only permissible value for `<Win-version>` is **PostWindows7**.

<log-file>

The path and file name of a log file in which to log the installation details.

Examples

32-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and (on Windows 8 and later) also creates the extend start menu in the Windows program list:

```
msiexec /i "extend(R) Version 10.2.0 x86.msi" INSTALLDIR=C:\AcuInstallDir
  ADDLOCAL=Runtime,Acu4GLMSSQL,AcuSQLRuntime
  WINDOWSVERSION=PostWindows7 /qn
```

64-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the C:\AcuInstallDir directory, and the 64-bit runtime, Acu4GL for MSSQL, and AcuSQL runtime to the C:

\AcuInstallDir64 directory:

```
msiexec /i "extend(R) Version 10.2.0 x64.msi" INSTALLDIR=C:\AcuInstallDir
  INSTALLDIR64=C:\AcuInstallDir64
  ADDLOCAL=Runtime,Runtime64,Acu4GLMSSQL,Acu4GLMSSQL64,AcuSQLRuntime,AcuSQLRuntime64 /qn
```

Comments

You can also use the `msiexec` command to run the installation with a user interface: omit the `ADDLOCAL` parameter and substitute `/qn` for `/qf`.

You can also use the `msiexec` command to install the thin client `.msi` file that is supplied with your product: omit the `ADDLOCAL` parameter.

Product Variables for Silent Installation

The following table contains a list of possible arguments that you can use with `ADDLOCAL` when running a silent installation. Most argument names are self-explanatory; the **Notes** column explains those that are not. Arguments are also valid for containerization unless noted otherwise.

Argument name	Notes
Acu4GLDB2	
Acu4GLDB264	
Acu4GLMSSQL	
Acu4GLMSSQL64	
Acu4GLODBC	
Acu4GLODBC64	
Acu4GLOracle	
Acu4GLOracle64	
AcuBench	Not valid for containerization.
AcuConnect	
AcuConnect64	
AcuConnectDistributedProcessing	

Argument name	Notes
AcuConnectThinClient	
AcuServer	
AcuServer64	
AcuSQLPrecompiler	
AcuSQLPrecompiler64	
AcuSQLRuntime	
AcuSQLRuntime64	
AcuToWeb	
AcuXDBC	
AcuXDBC64	
AcuXDBCEnterpriseEdition	<p>The 32-bit and the 64-bit versions of AcuXDBCEnterpriseEdition are mutually exclusive; you may only specify one of these versions during the installation.</p>
AcuXDBCEnterpriseEdition64	
AcuxdbcsBat	
AcuxdbcsBat64	
AcuXDBCServer	<p>The 32-bit and the 64-bit versions of AcuXDBCServer are mutually exclusive; you may only specify one of these versions during the installation.</p>
AcuXDBCServer64	
BIS	
Compiler	
Compiler64	
DevSys	<ul style="list-style-type: none"> • The ACUCOBOL-GT Development System, which includes the following: Compiler, Runtime, WebRuntime, ThinClient, and WebThinClient. • Not valid for containerization.
ExtendStartMenu	<ul style="list-style-type: none"> • The entry shown on the Windows program menu for Windows versions 8 and later. The 32-bit and the 64-bit versions of ExtendStartMenu are mutually exclusive; you may only specify one of these versions during the installation. • Not valid for containerization.
ExtendStartMenu64	<p>Not valid for containerization.</p>
LicenseActivator	<p>Not valid for containerization.</p>

Argument name	Notes
LicenseActivator64	Not valid for containerization.
OnlineDocumentationCHM	Not valid for containerization.
Runtime	
Runtime64	
ThinClient	Not valid for containerization.
ThinClientAutoUpdate	<ul style="list-style-type: none"> • Full Thin Client with Web-Browser2 loader. • Not valid for containerization.
ThinClientAutoUpdate4	<ul style="list-style-type: none"> • Full Thin Client with Web-Browser2 loader. • Not valid for containerization.
ThinClientAutoUpdateCompact	<ul style="list-style-type: none"> • Thin Client without Web-Browser2 support. • Not valid for containerization.
ThinClientAutoUpdateCompact64	<ul style="list-style-type: none"> • Thin Client without Web-Browser2 support. • Not valid for containerization.
VCRedist	Installs the Microsoft redistributable files, required by the extend products, if they are not already installed.
VortexJar	Required for AcuXDBCEE. The enterprise edition of AcuXDBC needs the <code>vortex.jar</code> file, which enables a Java client application to connect to your Vision database.
VortexJar64	
WebBrowser2	<ul style="list-style-type: none"> • Web-Browser2 control support files. • Not valid for containerization.
WebBrowser264	<ul style="list-style-type: none"> • Web-Browser2 control support files. • Not valid for containerization.
WebRuntime	

Examples

32-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the `C:\AcuInstallDir` directory, and (on Windows 8 and later) also creates the extend start menu in the Windows program list:

```
msiexec /i "extend(R) Version 10.2.0 x86.msi" INSTALLDIR=C:\AcuInstallDir
  ADDLOCAL=Runtime,Acu4GLMSSQL,AcuSQLRuntime
  WINDOWSVERSION=PostWindows7 /qn
```

64-bit installation:

For example, the following command silently installs the ACUCOBOL-GT runtime, Acu4GL for MSSQL, and the AcuSQL runtime to the `C:\AcuInstallDir` directory,

```
and the 64-bit runtime, Acu4GL for MSSQL, and AcuSQL runtime to the c:\AcuInstallDir64 directory:  
msiexec /i "extend(R) Version 10.2.0 x64.msi" INSTALLDIR=C:\AcuInstallDir  
INSTALLDIR64=C:\AcuInstallDir64  
ADDLOCAL=Runtime,Runtime64,Acu4GLMSSQL,Acu4GLMSSQL64,AcuSQLRuntime,AcuSQLRuntime64 /qn
```

Windows 64-bit Installations

There are 64-bit versions of most extend products. These 64-bit versions are installed using a separate 64-bit version of the installer. The installation process follows the same steps as described in [Installation on Windows Platforms](#), with the following notable exceptions.



Note: This release provides a new 64-bit Thin Client installer.

When running the 64-bit installer, if no 64-bit version exists for a selected product (for example, AcuBench), the 32-bit version is installed.

Products such as AcuConnect and AcuServer have 32-bit and 64-bit versions, and both are installed if you select these products during installation. You can also decide which version of the product to start on completion of the installation.

The AcuXDBC product is broken down into three installations: for the Data Interface, you can install both the 32-bit and 64-bit versions; and for the AcuXDBC Server and Enterprise Edition, you must choose which version to install.

By default, all 64-bit product versions are installed in the `Program Files` directory, and 32-bit product versions (and any supporting non-64-bit tools) are installed in the `Program Files (x86)` directory; although, you can change these locations during the installation. All the 32-bit versions are fully supported and functional in a 64-bit environment.

The following 64-bit executables are now available with the 64-bit Windows installation:

```
activator.exe  
acu4glfd.exe  
acubench.exe  
acuthin.exe  
acuthinns.exe  
boomerang.exe  
ccb132.exe  
crun32.exe  
Marshal.exe  
RegAsm30Acu.exe  
RegAsm40Acu.exe  
run32.exe  
xml2fd.exe  
xmlwf.exe
```



Remember: When running the license activator after the installation, the 64-bit version of the Activator utility is run, which installs license files into both the 32-bit and 64-bit directories. When running the Activator utility from the command prompt, make sure you are using the 64-bit command prompt to ensure the correct licenses are generated and placed in the correct locations; otherwise, if the 32-bit Activator utility is run, only license files for 32-bit products will be generated.

Installation Notes

Debugging files

The Windows distribution media now contains .pdb debugging files to assist customer support in solving runtime issues on a customer's machine - .pdb files enable runtime stack information to be generated.

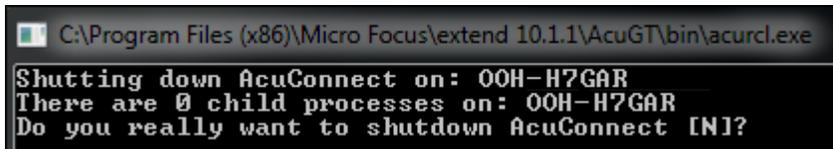
To setup this ability, copy the .pdb files from the 32-bit or 64-bit Debug directories on the distribution media to the 32-bit or 64-bit directory of the installation. 32-bit files on the media are located in Debug\Win32\bin*.pdb, and 64-bit files on the media are located in Debug\x64\bin*.pdb.

Once the .pdb files are copied, follow any instructions given to you by Customer Support.

AcuConnect, AcuServer, and AcuToWeb

During the installation process, if you are installing AcuConnect, AcuServer, or AcuToWeb, you can choose to automatically start those services as part of the installation process.

Those services can only be started if certain conditions are met. For example, the services will attempt to start on a default port (AcuConnect 5632, AcuServer 6523, AcuToWeb TCP_PORT 8009, AcuToWeb WEBSERVER_PORT 3000). If an existing installation is already using that port, that service must be stopped if the installation is to create and run the new service. If you do not stop the existing service, the installation can only create the new service; it cannot run it.



If there is no previous installation, a default AcuAccess configuration file is only created (in its default location of %PROGRAMDATA%\Micro Focus\extend\10.5.0) when the service starts.

 **Note:** When a Windows configuration file is installed or created, the default destination directory is: %PROGRAMDATA%\Micro Focus\extend\x.x.x

Where x.x.x is the installed version number of extend.

If you configure the installation to not start the service, no AcuAccess file will exist until you start the products from their respective control panels (or command line equivalents). If a previous installation exists, ACUCOBOL-GT uses the first AcuAccess file found in one of the searched directories.

 **Note:** This file and directory are not removed when you uninstall a previous product.

BIN-REDIST and REDIST Installation Directories

The extend Windows distribution contains two directories: BIN-REDIST and REDIST.

REDIST contains thin client files that should be distributed along with the thin client.

BIN-REDIST contains Microsoft Redistributable files. These files are required in cases where the ACUCOBOL-GT bin directory and runtime are placed on a shared drive and users then map to that drive. The BIN-REDIST directory should be placed inside the shared bin directory.

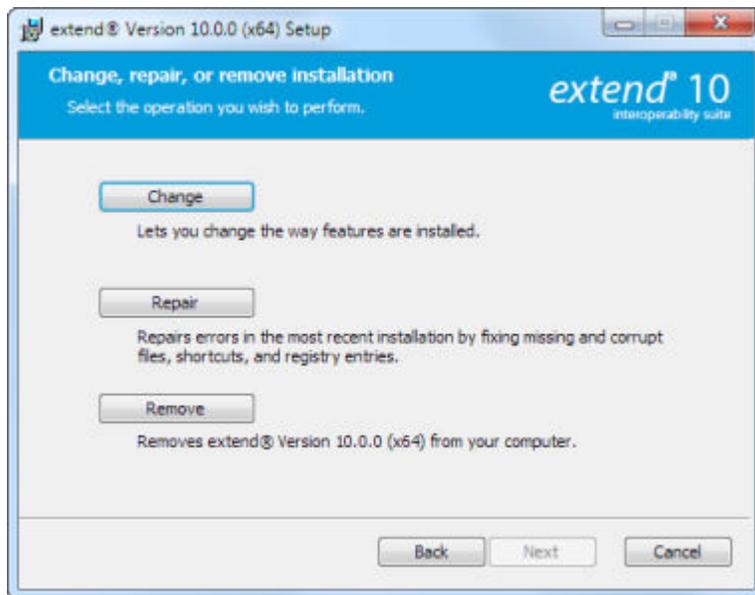
Uninstalling or Modifying Your Installation

You can uninstall or amend your current installation in one of two ways: you can run the installer again, or use the Programs and Features section in Windows. Both enable you to run the Installation Wizard, where you can perform the following program maintenance:

Change Enables you to add or remove products to and from your current installation. Any products that were already checked that you uncheck are uninstalled. Any additions are installed using the default installation path (C:\Program Files\Micro Focus\extend x.x.x - where x.x.x is the version number). There is no option to change to a non-default location, but you can overcome this with some products by copying the installed files from the default location to your preferred location. Note that this method will not work for AcuXDBC, AcuBench, and any server products that are registered as services.

Repair Enables you to reinstall the currently installed products.

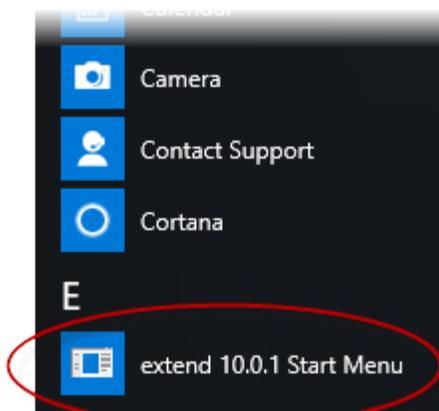
Remove Enables you to remove all products of your installation.



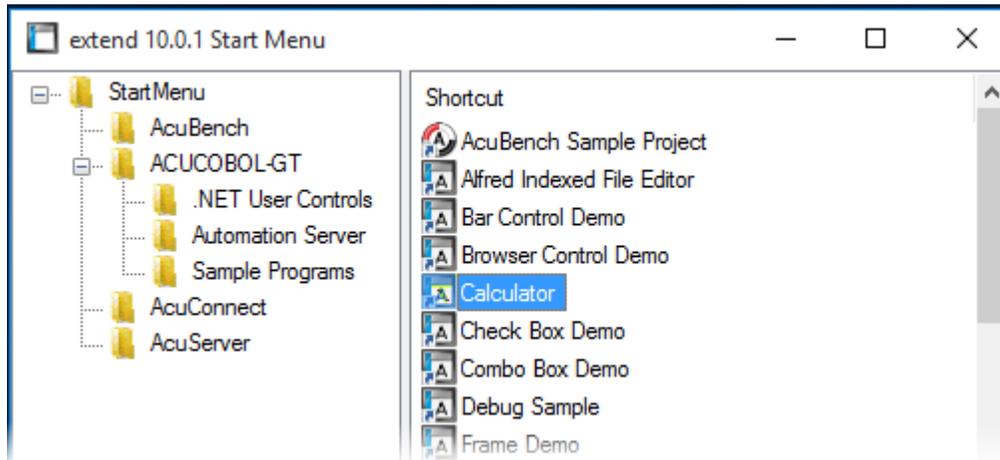
Launching extend Products on Windows 8 or Later

Since the introduction of Windows 8, the Windows program menu does not display programs in a hierarchical way. For the extend Interoperability Suite, this would mean that all the programs relating to AcuBench, ACUCOBOL-GT, AcuConnect, etc... would be displayed as a flat list, and it would be difficult to distinguish which programs were related to which products.

In order to show the programs grouped within the products they belong to, the extend Start Menu has been introduced. After installation of the extend Interoperability Suite, there will be one entry in the Windows programs menu - **extend x.x.x Start Menu** (where x.x.x is the version number of the installed product):



Launch this application to display a hierarchy that looks similar to the Windows program menus prior to Windows 8. Simply navigate the folders displayed in the left-hand pane to display shortcuts to the related programs in the right-hand pane. Select the required shortcut: at which point, the extend Start Menu closes and the program is launched.



Compiling Your Programs

The ACUCOBOL-GT compiler is most easily used via AcuBench. However, it is also possible to compile from the command prompt or the Windows Start menu, to establish an association between your source files and the compiler executable, or to set up one or more icons to compile individual files. For information regarding creating file associations and setting up icons, see your Windows documentation.

When you compile, if the system returns "Bad command or file name," you did not add the location of the compiler to the PATH environment variable, or you have not rebooted since installing the software.

You can check the current definition of PATH by typing `path` and pressing **Enter** at the command prompt. The default path is `C:\Program Files\Micro Focus\extend x.x.x\AcuGT\bin` (or `C:\Program Files (x86)\...` for 64-bit installations). If you do not update PATH with this entry, you must type the full path and program name to the compiler each time you compile; alternatively, you can create a `.bat` file.

Once you have verified that the compiler is in your PATH (or you have decided that you will specify the full path every time you compile), you are ready to compile your programs. Refer to *ACUCOBOL-GT User's Guide > Compiler and Runtime > Using the Compiler* for a complete list of compile options. You can also display a complete list of options by running the compiler command:

```
ccb132 -help
```

One commonly used option is `-o`. This option is used to specify the name of the output object file. Note that ACUCOBOL-GT uses the naming convention `.acu` to indicate an ACUCOBOL-GT object file. If `-o` is not used, the compiler will name the file `source-name.acu`. If your source includes COPY files, you can copy the COPY files to your current working directory, specify their location with the `-Sp` option followed by the complete path of one or more directories, or set the `COPYPATH` environment variable. A typical compilation command might look like:

```
ccb132 -Sp c:\work\lib -o sample.cbx sample.cbl
```

Running Your Programs

After a successful compilation, the resultant object file is ready for immediate execution (no link step is required). To run your program, make a note of the full path to your object file and return to the Windows desktop.

There are a variety of ways to run your program under Windows. The basic methods are:

- Running a command from the **Start** menu.
- Placing an icon for each program in a Program Group or folder, and then starting the program by double-clicking its icon.
- Naming your COBOL object files with a common file extension and then associating the extension with the runtime. After the association is established, you can run a program by double-clicking on the name of the file as it appears in Windows.
- Using the **wrun32** (or **crun32** if you are using the console runtime) command at the command prompt.

This document describes how to run a program from the **Start** menu only (although, the command line option is almost identical). The advantage of this method is that it requires no special setup. However, it is more time-consuming (than other methods) because you must type the command line options every time you execute the program. For greater convenience, it is best to set up a program icon: to do this, or to create a file association to the runtime, please refer to your Windows documentation.

1. Click the **Start** button.
2. On the Start menu, in the entry field, type the name of your ACUCOBOL-GT Windows runtime.

The default name is `wrun32.exe`. If you changed the name of the runtime executable, enter that name.

3. Following the name of the runtime, enter any runtime options required, followed by the path and name of the COBOL executable program you want to run.
4. After you have entered the complete command line, press **Enter** to execute the program.



Note: If you did not add the `\bin` directory path to the PATH system environment variable (typically, that is: `c:\Program Files\Micro Focus\extend xxx\AcuGT\bin`), you will need to specify the full path to the runtime (`c:\Program Files\Micro Focus\extend xxx\AcuGT\bin\wrun32.exe`) each time in the command (and not simply `wrun32.exe`).

You can use the COBOL configuration variable `DEFAULT_PROGRAM` to specify the name of the program to execute when no program is specified on the command line. See *Appendix H* in the ACUCOBOL-GT documentation set for more configuration information.

Printing and Spooler Issues

ACUCOBOL-GT includes extended support for printing under Windows. In addition to the basic print spooler access procedures described below, the `WIN$PRINTER` runtime library routine provides easy access to extended Windows print spooler capabilities. See the entry for "WIN\$PRINTER" in *ACUCOBOL-GT Appendices Guide > Appendix I*. Rules for printer handling are illustrated in the *ACUCOBOL-GT User's Guide > Compiler and Runtime > Filename Interpretation > Assigning Files to Printers*.

Under Windows, you may print directly to the printer by defining `PRINTER` in the configuration file as `"-D PRN"`. Be aware that this does not prevent other programs from printing at the same time and as a result you may get intermixed pages.

You may also print using the Windows spooler, even if your reports have embedded control codes. The spooler allows many programs to create print files at the same time, and also allows the user to do other tasks while the report is being printed.



Note: The configuration variable WIN_SPOOLER_PORT allows you to divert printer output to a file or port through the Windows print spooler. For more information, see *ACUCOBOL-GT Appendices Guide > Appendix H* of the ACUCOBOL-GT manual set.

Before you assign your print file to the Windows spooler, you must decide whether you want to control the format of each page directly (with embedded control codes) or whether you want the print spooler to format the pages.

Spooler Formatting

There are two ways to use the Windows spooler to format your print file: "-P SPOOLER" and "-Q <prntername>". See [Direct Control](#) for information on controlling the formatting yourself.

-P SPOOLER

If you want to use the default printer and font, simply assign your print file to "-P SPOOLER". For example, to assign "PRINTER1" to the spooler, enter the following line in your COBOL configuration file ("CBLCONF1"):

```
PRINTER1 -P SPOOLER
```

By default, the runtime system assigns the "PRINTER" device to the spooler. You may change this in the configuration file by assigning "PRINTER" to some other name.

When the runtime opens a file assigned to "-P SPOOLER", it automatically initiates a job with the Windows spooler and constructs print pages in accordance with your program. The runtime uses the default printer and font. If the user looks for the job in the spooler, it is named with the current title of the ACUCOBOL-GT window.



Note:

The Windows spooler operates by drawing your report on each page. It constructs its own control codes to handle formatting. If you assign your print file to "-P SPOOLER" and your file contains device-dependent control sequences (such as those used to shift to a condensed font, or to print a form and then fill it in), the codes will be passed to the spooler as data and thus will not be interpreted correctly. If you have reports that depend on embedded control codes, you should print those directly to the device, or assign the print file to "-P SPOOLER-DIRECT," as described below.

-Q <prntername>

If you want the Windows spooler to format the pages of your report, but you want to use a particular printer, assign your print file to:

```
PRINTER1 -Q \\prntername
```

in the configuration file (CBLCONF1). *Prntername* is the printer designation as given in the **Devices and Printers** screen. The name may be up to 80 characters long and contain embedded spaces. The name may not include the semicolon character (;) or be surrounded by single or double quotes. The pages are printed in the manner described in "-P SPOOLER", above. The sample programs `graphprn.cbl` and `prndemox.cbl` contain examples of these functions.

To determine a valid printer name, use the WIN\$PRINTER library routine to obtain the name of the desired printer. (This is described in *Appendix I* under the WINPRINT-SET-PRINTER operation code in "Specifying a Printer".) Then add the following line to your code:

```
MOVE "-Q \\prntername" TO WS-PRINTER-NAME.
```

When the runtime opens a file assigned to "-Q <prntername>", it sets the Windows print spooler to use this printer. The printer driver must be installed on the computer from which you print. If *prntername* is not recognized by the runtime, a dialog box allows you to choose a printer manually.



Note:

If you want to access a printer using a UNC path, you have to print directly to the printer by defining PRINTER as "-D PRN". If you use the UNC path, Windows formatting is not supported.

Direct Control

If you want to control the format of the printout yourself using embedded control codes, simply assign your print file to `-P SPOOLER-DIRECT` or to `-Q <printername>` using the `DIRECT=ON` option. For example, to assign the print job "PRINTER1" to the spooler and retain direct control over formatting, enter the following line in your COBOL configuration file (`CBLCONF1`):

```
PRINTER1 -P SPOOLER-DIRECT
```

Or, use the following command to assign PRINTER1 to the spooler for printing to a specific printer while retaining direct formatting control:

```
PRINTER1 -Q printername;DIRECT=ON
```

Both of these methods cause the print job to be sent to the printer via the Windows spooler, but the program does not use the spooler to format the pages. You must use embedded control codes to handle formatting (much as you would under UNIX if you used the UNIX spooler).

When using the `-P SPOOLER-DIRECT` option, you may use the `WIN$PRINTER` library routine to choose a printer, but because you completely control the printer, the various options provided by `WIN$PRINTER` are ignored. For example, `WIN$PRINTER` does not set the page size, page orientation, or font. Information returned from `WIN$PRINTER`, such as number of lines and columns on the page, may not be accurate and should not be used. This subject is discussed in detail in Appendix I "*Library Routines*" of the ACUCOBOL-GT manual set.

Because some print drivers do not flush the last page, be sure to end your last page with a form-feed (for example, `WRITE ... BEFORE ADVANCING PAGE`). This ensures that all pages are printed. The ACUCOBOL-GT runtime ensures that no extra blank pages are printed at the end.

If you code `WRITE...AFTER ADVANCING PAGE` instead of `WRITE...BEFORE ADVANCING PAGE`, you might receive a blank last page. This is because a blank line written on the new page causes the Windows subsystem to flush the page for some print drivers. ACUCOBOL-GT ensures that entirely empty lines are not sent to the device (only the form-feed will be sent). But it is essential that:

- You have specified trailing space removal in your COBOL code (the default for print files).
- You have set the configuration option `MIN-REC-SIZE` to "0".

Your other option is to specify `WRITE... BEFORE ADVANCING PAGE` to avoid this potential problem.

If the user looks for the job in the spooler, it is named with the current title of the ACUCOBOL-GT window.

Printing Multiple Jobs Simultaneously

If you need to print multiple jobs at the same time, you must open multiple File Descriptors that point to `-P SPOOLER` or `-P SPOOLER-DIRECT` simultaneously. For example, you may have two simultaneous print jobs:

```
SELECT FIRST-FILE
  ASSIGN TO PRINTER "-P SPOOLER" .

SELECT SECOND-FILE
  ASSIGN TO PRINTER "-P SPOOLER" .

..PROCEDURE DIVISION.

..

  OPEN OUTPUT FIRST-FILE .
  OPEN OUTPUT SECOND-FILE .
```

and both will print to the default Windows printer without interfering with each other. You can call WIN\$PRINTER USING WINPRINT-SETUP before one or both of the OPEN statements. Each file may have individual file status variables or may refer to a common file status variable.

This does not mean that you can open a single File Descriptor multiple times. For example, the following will return file status indicating that the file is already opened:

```
SELECT FIRST-FILE
      ASSIGN TO PRINTER "-P SPOOLER" .

. .

PROCEDURE DIVISION.

. .

      OPEN OUTPUT FIRST-FILE .
      OPEN OUTPUT FIRST-FILE .
```

This is normal behavior and is consistent with the way file handling is implemented in COBOL and in other programming languages.

If you are using only the verbs OPEN, CLOSE, and WRITE, no further changes to your code are needed. If you are using WIN\$PRINTER functionality (other than WINPRINT-SETUP) you will need to specify which print job is affected. This can be done in two ways:

1. The simplest way is to execute the WIN\$PRINT operation immediately after an OPEN or WRITE statement on the intended job. Every execution of OPEN and WRITE sets the current job as the default so that subsequent activity using WIN\$PRINTER is automatically directed to the job that was last accessed with an OPEN or WRITE statement.

In this situation, if you have multiple jobs running, and you close one of them, the runtime switches to the next job in the list. For example, if you are printing jobs 1, 2, and 3, and you close job 2, the close command sets the current job to 3. If there is no job 3, the runtime attempts to set to the job that preceded the closed job (which in this case is job 1). If there are no jobs, the current job is initialized.

2. The other method is to use the WINPRINT-SET-JOB operation of the WIN\$PRINTER library routine. This operation is described in *Appendix I* of the ACUCOBOL-GT manual set.

UNIX Installation

License Files for UNIX

UNIX users may request a license file for one or more users.

When you receive your product(s), the package includes product codes and product keys for every product you ordered. You require these product codes and product keys to create license files.

The Activator Utility

The Activator utility automates the process of creating a license file. On UNIX platforms, the Activator utility operates through a command-line interface.

By default, the Activator utility program (`activator`) is placed in the same directory as the runtime and other binary executable files.

If you did not install the Activator utility with your other products, simply copy the file onto your computer and run it as you would any other executable.

Changing or Updating Your UNIX License Files

If you need to alter a license file, contact your Micro Focus *extend* representative for updated product codes and product keys. When you receive them, launch the Activator utility and enter the new product codes and product keys as prompted.

Installation Under UNIX

To install *extend* products on UNIX or Linux systems, you must have the product media, and the product codes and product keys for the products you intend to install. Your products are delivered via FTP.

Installation Process

1. Download the product from the Micro Focus SupportLine site.



Note: Before running the installer, ensure that the `tar` utility is on your PATH.

2. Enter the following:

```
/path/to/installer/installer-name [options]
```

where *installer-name* will be something similar to `setup_acucob1010pmk59shACU`.

The following options can be included:

Option	Description
<code>-d installation-path</code>	Specifies a new default install location offered during the installation. If not specified, the default location is the current working directory (.). Any specified directory must already exist.

Option	Description
-EULA	This option can be combined with the <code>-EULA</code> option, but if it is, it will specify the location of the extracted EULA, and not the location of the installed product.
-help	Displays the available options that can be appended to the installation command.

 **Note:** If you install ACUCOBOL-GT as a shared object library and you don't install to the default location, you need to set an appropriate library path variable specifying the location of the shared objects. For example, on an AIX system, you would need to set the LIBPATH environment variable. Note that if you log in as root or a superuser, this variable must also be set in root's environment for ACUCOBOL-GT to start. Additionally, see [SHARED_LIBRARY_PREFIX configuration variable](#).

After installation, you must use the Activator utility to license the products installed.

- From the installation directory, enter the following command to run the Activator utility:

```
./bin/activator
```

- At the prompt, type the product code and product key pairs that came with your product package, pressing **Enter** after each pair: this updates the license file. Repeat this cycle until the code/key pairs for each product you have ordered are entered.

 **Note:** Each product searches for its license file in the same directory in which its executable resides. If you move the product's executable to a new directory, you must move its license file to the same location.

- To start the acushare license manager service, enter the following:

```
acushare -start
```

- Navigate to the `sample` sub-directory of your installation directory and try compiling and running the **tour** program, using the following commands:

```
ccbl tour.cbl
runcbl tour.acu
```

- If you get the message `Can't find entry for 'terminal' in 'term-lib'`, you need to configure your terminal for ACUCOBOL-GT. See [Configuring Your Terminals](#).
- Once you have the sample program running, we recommend that you edit the `cblconfig` file supplied with ACUCOBOL-GT to meet the needs of your site. In particular, you should configure it to support the printers you have attached to your system.
- If you are using shared memory, see the instructions for configuring acushare in *ACUCOBOL-GT User's Guide > Runtime Manual > Shared Memory > Acushare Utility Program*.

SHARED_LIBRARY_PREFIX Configuration Variable

If you install ACUCOBOL-GT as a shared object library and you don't install to the default location, you need to set an appropriate library path variable (LIBPATH or LD_LIBRARY_PATH) specifying the location of the shared objects. The SHARED_LIBRARY_PREFIX variable helps the runtime find `aclnt.so` (or `aclnt.sl`) in case the LIBPATH (or LD_LIBRARY_PATH) variable is not set. `libclnt.so` (or `.sl`) is needed for AcuServer and AcuConnect support.

If a shared library name is specified without any directory information and the system call fails to load the shared library, the runtime will try to load the shared library from each of the directories specified in the SHARED_LIBRARY_PREFIX configuration variable.

The default value for SHARED_LIBRARY_PREFIX is `/opt/acucorp/xxx/lib:/opt/acu/lib`. The format of the value of SHARED_LIBRARY_PREFIX is the same as FILE_PREFIX. You can set SHARED_LIBRARY_PREFIX in the configuration file or environment, or programatically with the SET verb.

Note that the runtime searches for and loads `aclnt.so` (or `aclnt.sl`) using the default value of `SHARED_LIBRARY_PREFIX`. This happens before reading the configuration file, environment, or running any COBOL code.

You can set `SHARED_LIBRARY_PREFIX` to an empty value if you do not want to use it.

Also, if the license is for AcuTSL, in a transactional server environment such as CICS, the runtime will add `/opt/acucorp/xxx/bin/runcbl.11c` and `/opt/acu/bin/runcbl.11c` to its list of license files to check. First the runtime checks `$ACUCOBOL/etc/license.acu`, then `/etc/license.acu`. If neither exists, the runtime will check `/opt/acucorp/xxx/bin/runcbl.11c` and finally `/opt/acu/bin/runcbl.11c`.

For cases in which users install ACUCOBOL-GT in the default location, `/opt/acucorp/xxx` or `/opt/acu`, and they have a license file, `runcbl.11c` in their bin directory, they will not need to copy the license to `/etc/license.acu`.

Configuring Your Terminals

ACUCOBOL-GT requires data about the video environment it is running in. On Windows machines, it directly examines the hardware and configures itself appropriately. On UNIX machines, you must provide a description of the terminal you are using. This section describes briefly how to provide that information. Additional details are provided in the *Terminal Manager* section of the *ACUCOBOL-GT User's Guide*.

On systems that do not configure themselves automatically, describing the terminal to ACUCOBOL-GT involves two steps:

1. First, identify the terminal by setting the "TERM" variable.
2. Second, ensure that the terminal's characteristics are accurately described in the terminal database file.

TERM Variable

ACUCOBOL-GT determines the type of terminal you are using by looking at the setting of the "TERM" variable. On UNIX and Linux machines, TERM is an environment variable. Samples are presented below.

TERM should be set to the name of one of the entries in the terminal database. You can examine the database file for valid names. The first field of each entry consists of a list of accepted names. Some common names are "vt100", "tv925", and "wy50" for VT100, Televideo 925, and Wyse 50 terminals, respectively.

On most UNIX systems, the TERM environment variable is initialized as part of the login procedure. You will need to change this only if the name used is not one listed in the terminal database.

As an example, suppose you want to use a VT220 terminal. In the database, "vt220" is one of the accepted names for this type of terminal. On UNIX systems with the Bourne or Korn shell, the command would be:

```
TERM=vt200; export TERM
```

Using the C shell, the equivalent command is:

```
setenv TERM vt220
```

You may want to leave the TERM variable at its current setting to maintain compatibility with other software. If the setting is not correct for ACUCOBOL-GT, you can set the "A_TERM" variable instead. If both the A_TERM and TERM variables are set, ACUCOBOL-GT uses the definition of A_TERM. This allows you to have different settings for ACUCOBOL-GT and your other software.

Terminal Database

ACUCOBOL-GT comes with a database of terminal descriptions. On UNIX machines, this is called "a_termcap". This database contains encoded descriptions of many types of terminals. You need to select the terminal type in the database that most closely matches the terminal you are using. If you need to, you can add your own entries in the database.

By default, the terminal database should reside in a pre-selected directory on your machine. On UNIX systems (using the Bourne shell), you might use the command:

```
A_TERMCPAP=/usr/local/etc/a_termcap; export A_TERMCPAP
```

The *ACUCOBOL-GT User's Guide* contains more information about setting up terminals and making full use of their capabilities, and selecting terminal types.

What's New

In this release, we have dropped support for the Microsoft Internet Explorer browser. As a consequence, we no longer support the Web Runtime and the Web Thin Client. However, also in this release, we provide some new *AcuToWeb Gateway* features that provide similar functionality. For details, see *AcuToWeb Enhancements* in these *Release Notes*, and the *AcuToWeb Gateway* section of your *AcuToWeb User's Guide*.

The following items are new for this release:

Acu4GL Enhancements

This section includes the enhancements related to Acu4GL.

ECN-GL586 Increased table and column name sizes for ODBC

Product: Acu4GL

Module: ODBC

Machines Affected: All

Versions Affected: All

DESCRIPTION:

To accommodate the number of characters the ODBC driver allows, this release increases the allowable table name and column name sizes for ODBC via two new ODBC configuration file variables. For details, see *A_ODBC_MAX_COLUMNNAME_LEN* and *A_ODBC_MAX_TABLENAME_LEN* in your Acu4GL documentation.

ECN-GL590 Support for ODBC Driver version 18 for SQL Server

Product: Acu4GL

Module: MSSQL

Machines Affected: All

Versions Affected: All

DESCRIPTION:

This release supports all currently available versions of the Microsoft SQL Server ODBC Driver, and has been tested through version 18.

For details, see the following Configuration Variable topics in your *Acu4GL User's Guide*:

A-MSSQL-ODBC-DRIVER-NAME

A-MSSQL-ENCRYPT-CONNECTION

A-MSSQL-TRUST-SERVER-CERTIFICATE

AcuBench Enhancements

This section includes the enhancements related to AcuBench.

ECN-AB729 Removed obsolete AcuBenchPrint.dll

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Versions Affected: All

DESCRIPTION:

With the deprecation of Microsoft Internet Explorer, the `AcuBenchPrint.dll` file is obsolete in this release and has been removed. Report generation no longer requires it.

To continue to print reports generated using previous versions, copy `AcuBenchPrint.dll` from an earlier distribution

AcuBench now generates code to use the new `WIN$HELLEXECUTE` library routine to display the generated html reports. See *ECN-4734* in these *Release Notes* for details.

ECN-WB738 COPYPATH changes

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.0.0 and later

DESCRIPTION:

The Windows installation in version 10.0.0 moved the distributed copybook definition files, such as `acucobol.def` and others, from `\Program Files` (as set by the `ACUDIR` variable) to the location referenced by the `SAMPLEDIR` variable in project files. In version 10.5.0, we now detect the older `ACUDIR` variable, and replace it with `SAMPLEDIR` when it is used in `COPYPATH`.

ACUCOBOL-GT Enhancements

This section includes the enhancements related to ACUCOBOL-GT.

ECN-4717 New method for processing graphics using Microsoft ATL MFC class `CImage`

Defect Number: 58098

Product: ACUCOBOL-GT

Module: Runtime, Thin Client

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

The `AJPG32.dll` library used in previous versions of ACUCOBOL-GT to download graphics files is no longer supported by its vendor. This version now uses the Microsoft ATL MFC class `CImage` to load these file types, and to do the following:

- Draw BITMAP controls, including handling the TRANSPARENT property, and stretching to fit
- Print BITMAP images
- Handle IMAGELIST types, which can be used as the bitmaps in the titles of TAB and TREEVIEW controls
- Handle BITMAP BUTTON controls
- Handle WBITMAP-DISPLAY

To provide backward compatibility with previous versions of ACUCOBOL-GT, a new configuration variable, `V104-BITMAPS`, has been added.



Limitations: You can now use the TRANSPARENT property on all bitmap control types (buttons, check boxes, radio buttons, etc); however, 8-bit (and lower) images might not paint as desired, likely due to a limitation in the Microsoft function `TransparentBlt()`, which is used to draw images with transparency.



Attention: Bug fixes and enhancements are no longer provided for issues that arise from using the old method of bitmap processing.

For additional information about this new functionality, see the `V104_BITMAPS` configuration variable topic in your *ACUCOBOL-GT* documentation..

ECN-4720 More image types supported by WBITMAP-CAPTURE op-codes

Defect Number: 69077

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

The `WBITMAP-CAPTURE-IMAGE`, `WBITMAP-CAPTURE-DESKTOP`, and `WBITMAP-CAPTURE-CLIPBOARD` op-codes all now support all formats supported by the Microsoft `CImage` class, including JPEG, PNG, and TIFF.

For more information, see the *WBITMAP-CAPTURE-IMAGE (op-code 7)*, *WBITMAP-CAPTURE-DESKTOP (op-code 8)*, and *WBITMAP-CAPTURE-CLIPBOARD (op-code 9)* topics in your *ACUCOBOL-GT* documentation.

ECN-4721 Event Procedure diagnostic tool

Defect Number: 11364

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

A new diagnostic tool has been added to find and report on long-running event procedures, which often indicate structurally problematic code. For complete information, see *Event Procedures and Diagnostics* in the *ACUCOBOL-GT* documentation.

ECN-4723 New Web browser control

Defect Number: 51173

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

DESCRIPTION:

A new Web browser control, WEB-BROWSER2, has been added. In addition, the WEB-BROWSER control is being deprecated, meaning it is still available for use with Microsoft Internet Explorer as long as Microsoft continues to distribute it; however, starting with ACUCOBOL-GT 10.5.0, no updates to the WEB-BROWSER control will be provided.

For details about using the WEB-BROWSER2 control, see *WEB-BROWSER2 Control* in your *ACUCOBOL-GT* documentation.

ECN-4727 Containerization examples for extend products on Windows and Linux

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows and Linux

Known Versions Affected: All

DESCRIPTION:

Containers use an open platform for developing, deploying, and running applications. Containerization enables you to create an image that includes an operating system, some of the extend products, your application, any binaries or libraries that your application depends on, and any configuration details. Once an image has been created you can run that image in a container.

Starting with 10.5.0, samples for both Windows and Linux platforms have been added that enable you to work with images and containers. These samples show you how to run a COBOL program in a container using AcuThin and AcuToWeb.

The new samples are located in the `samples/containerization` folder of your ACUCOBOL-GT compiler installation.

For complete information on using containers with ACUCOBOL-GT, see the *Working with Containerization Technologies* section in *A Guide to Interoperating with ACUCOBOL-GT*.

ECN-4730 New C\$885915-UTF8 and C\$UTF8-885915 library functions

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows and Linux

DESCRIPTION:

This change introduces two new library functions, C\$885915-UTF8 and C\$UTF8-885915, for converting strings between ISO 8859-15 and UTF-8 encodings. See the *C\$885915-UTF8* and *C\$UTF8-885915* library routine topics in your *ACUCOBOL-GT* documentation for details.

ECN-4734 New library routine WIN\$SHELLEXECUTE

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

DESCRIPTION:

This release introduces the WIN\$SHELLEXECUTE library routine to emulate the ShellExecuteEx() Win32 API function, which is executed by double-clicking an icon in Windows Explorer.

See the *WIN\$SHELLEXECUTE* library routine topic in your *ACUCOBOL-GT* documentation for details.

ECN-4735 New XFD value for <file-organization> element

Defect Number: 130003

Product: ACUCOBOL-GT

Modules: Compiler, Runtime

Machines Affected: All

DESCRIPTION:

The <file-organization> element used in XML-style XFD files has been updated to enable distinguishing between line sequential and binary sequential files. Valid values are:

indexed	indexed files
relative	relative files
sequential	old-style sequential files
binary sequential	binary sequential files
line sequential	line sequential files

The A4GetXFDFileType function now returns:

12	indexed file
8	relative file
4	binary sequential or unknown sequential file
5	line sequential file

**Notes:**

- This information is available with XML-style XFD files only. Old-style XFD files do not contain this information.
- The version number of the XFD file did not change as a result of this update.

ECN-4741 New search implementation to find config files on Windows

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When required, ACUCOBOL-GT searches for a specific configuration file, which can be any file from this list:

```
AcuAccess
a_srvcfg
a_termcap
acucobol.msg
acurcl.cfg
acurcl.ini
analyze.%d.cfg
boomerang.cfg
boomerang_alias.ini
cblconfi
```

In previous releases, ACUCOBOL-GT searched for these files in an `\etc` directory off of the root. To increase compatibility with Microsoft Windows, this release of ACUCOBOL-GT delivers or generates these files in the following directories, and searches in this order:

```
%ProgramData%\Micro Focus\extend\x.x.x
%ProgramData%\Micro Focus\extend
\etc
```

Where `x.x.x` is the version of `extend`, for example, 10.5.0.

If the required file is not found in one of the first two listed directories, it searches `\etc` for backward compatibility.

ECN-4742 Updated Windows installation includes new 64-bit products

Product: ACUCOBOL-GT

Module: All

Machines Affected: Windows

DESCRIPTION:

The following 64-bit executables are now available with the 64-bit Windows installation:

```
activator.exe
acu4glfd.exe
acubench.exe
acuthin.exe
acuthinns.exe
boomerang.exe
ccb132.exe
crun32.exe
Marshal.exe
RegAsm30Acu.exe
RegAsm40Acu.exe
run32.exe
xml2fd.exe
xmlwf.exe
```

In addition, this release provides a 64-bit Windows installer for Thin Client.

ECN-4743 New support for JSON PARSE/GENERATE NAME OMITTED

Product: ACUCOBOL-GT

Modules: Runtime, Compiler

Machines Affected: All

DESCRIPTION:

This change adds support for JSON PARSE/GENERATE NAME OMITTED, allowing the parsing or generating of JSON while omitting the name of the top-level COBOL group item.

For example, if you receive some JSON without a matching top level name:

```
{ "ABC" : 123 , "DEF" , 456 }
```

You can parse it into a COBOL data item such as:

```
01 TOP-LEVEL.
   03 ABC PIC 999.
   03 DEF PIC 999.
```

By omitting the name of the top level-group item:

```
JSON PARSE JSON-DATA INTO TOP-LEVEL
NAME OF TOP-LEVEL is OMITTED
```

The TOP-LEVEL data item is populated even though the JSON data does not contain a matching TOP-LEVEL name. Similarly, when used with JSON GENERATE, the generated JSON data omits the name of the TOP-LEVEL group item.

For details about this feature, see *The JSON PARSE Statement* and *The JSON GENERATE Statement* in your ACUCOBOL-GT documentation.

ECN-4748 ACTIVE_BACKGROUND property for entry fields

Defect Number: 59187

Product: ACUCOBOL-GT

Modules: Runtime

Machines Affected: All

DESCRIPTION:

The `ACTIVE_BACKGROUND` special property for the Entry Field control enables you to change the active entry field background color by setting it to a value that represents the new color as follows.

```
ACTIVE_BACKGROUND = color-value
```

Where *color-value* is a number from 1 to 16 inclusive, and that is also defined in your `acucobol.def` file.

Set the property `ACTIVE_BACKGROUND = COLOR_VALUE` for any entry field. `COLOR_VALUE` can be When the entry-field is selected, it will change background color to this value, and when it loses focus it will revert.

For example, to create an entry field with a white background-color, black foreground-color (text), and a green active-background:

```
03 ENTRY-FIELD [...] BACKGROUND-COLOR is 7, FOREGROUND-COLOR IS 0,  
ACTIVE-BACKGROUND is GREEN.
```



Notes:

- The background color reverts when the field is no longer active.
- `ACTIVE_BACKGROUND` has no effect on Entry Fields that use the `BACKGROUND-RGB` or `FOREGROUND-RGB` values.
- The `ACTIVE_BACKGROUND` property cannot use an RGB value.

For a list of valid values, see the *FOREGROUND-COLOR and BACKGROUND-COLOR Phrases* topic in your ACUCOBOL-GT documentation.

ECN-4749 Windows installation new option to start AcuToWeb automatically

Product: ACUCOBOL-GT

Modules: Windows Installer

Machines Affected: Windows

DESCRIPTION:

When you select `AcuToWeb` on the **Product Selection** dialog box of the Windows installer, the **Installation Settings** dialog box now shows an option to start the `AcuToWeb` service automatically. If using the 64-bit installer you have the option to start the 32-bit or 64-bit `AcuToWeb` service. In addition, the `AcuConnect` service is automatically started because it is required for `AcuToWeb`.

If a previous version of `AcuToWeb` is installed as a service and you select the option to start the new version of `AcuToWeb`, the previous version of the `AcuToWeb` and `AcuConnect` services are removed before starting the new `AcuToWeb` and `AcuConnect` services.

ECN-4750 Grid enhancement

Defect Number: 51126

Product: ACUCOBOL-GT

Modules: Runtime, Compiler

Machines Affected: Windows

DESCRIPTION:

We have added the following new property for the grid control:

PHYS-X Can only be INQUIRED, and returns the physical column number active during the current event, similar to how the X property can be inquired during an event. Modifying this property has no effect.

For details, see the *PHYS-X (numeric)* control type topic in your ACUCOBOL-GT documentation.

ECN-4753 New feature to enable event tracing

Product: ACUCOBOL-GT

Modules: Runtime

Machines Affected: All

DESCRIPTION:

This release includes support for tracing events that are generated by the runtime to execute event paragraphs, and before/after/exception procedures. When used with paragraph tracing (`trace`), differences between the runtime and the Thin Client are easier to find and to allow for. To use this new feature from within the runtime debugger, execute `trace` to toggle event tracing.

For details, see the *Other Commands* topic in your *ACUCOBOL-GT* documentation.

ECN-4755 New grid properties

Defect Number: 51126

Product: ACUCOBOL-GT

Modules: Compiler

Machines Affected: Windows

DESCRIPTION:

This release includes new grid properties for user-specified row-heights, adjustable rows, vertical text alignment, and text wrapping. For details, see the *Common Properties* and *Special Properties* topics for the Grid control type.

ECN-4756 Grid control enhancements

Defect Number: 51126

Product: ACUCOBOL-GT

Modules: Runtime

Machines Affected: Windows

DESCRIPTION:

Implemented runtime functionality for the ROW-HEIGHTS, VALIGNMENT, and WRAP-TEXT properties, and the ADJUSTABLE-ROWS and CENTERED-ROW-HEADINGS styles. For details, see the *Common Properties* and *Special Properties* topics for the Grid control type.

 **Important:** To clarify the use of the VALIGNMENT (vertical alignment) vs. the existing ALIGNMENT grid property, the ALIGNMENT property has been renamed to HALIGNMENT to indicate horizontal

alignment. While ALIGNMENT is still accepted by the compiler, it logs a warning indicating that the style is obsolete. For further details, see the *HALIGNMENT (alphanumeric)* and *VALIGNMENT (alphanumeric)* topics in your ACUCOBOL-GT documentation.

ECN-4758 JSON GENERATE SUPPRESS WHEN enhancement

Defect Number: 59096
Product: ACUCOBOL-GT
Modules: Compiler, Runtime, JSON
Machines Affected: All

DESCRIPTION:

This release adds support for the SUPPRESS WHEN and NAME OMITTED phrases to the JSON GENERATE verb.

SUPPRESS WHEN Allows the suppression of data items in the generated JSON data if they contain certain values.

NAME OMITTED Generates an anonymous JSON object whose top-level parent name is not generated.

For details, see the *The JSON GENERATE Statement* topic in your ACUCOBOL-GT documentation.

ECN-4766 New vutil function to enable recreation of existing Vision file

Product: ACUCOBOL-GT
Module: vutil
Machines Affected: All

DESCRIPTION:

You can use the new `-g` vutil function with the `-info` function to display parameters for an existing Vision file. You can then use the displayed parameters to recreate the Vision file using vutil with the `-gen` function.

For details, see the *Vision File Utility - vutil* topic in your ACUCOBOL-GT documentation.

ECN-4770 New runtime configuration variable DATE_DEFAULT_FMT_VAL_ZERO

Defect Number: 202061
Product: ACUCOBOL-GT
Modules: Runtime
Machines Affected: 10.3.1 and later

DESCRIPTION:

In versions 10.3.0 and earlier, the default Value-Format for a Date-Entry was 0, which corresponds to YYYYMMDD. Starting with release 10.3.1, the default was changed to 1, which corresponds to YYMMDD. This is the default for version 10.5.0.

The new DATE_DEFAULT_FMT_VAL_ZERO configuration variable enables you to change the default Value-Format for a Date-Entry back to YYYYMMDD without having to make changes in code that was created using extend version 10.3.0 or earlier.

For full details, see *DATE_DEFAULT_FMT_VAL_ZERO* in your ACUCOBOL-GT documentation.

ECN-4774 Full and Compact Thin Client installers

Defect Number: 244073

Product: ACUCOBOL-GT

Modules: Thin Client

Machines Affected: 10.4.1 and earlier

DESCRIPTION:

Starting with version 10.5.0, ACUCOBOL-GT supports the new WEB-BROWSER2 control type. See *ECN-4723* and *ECN-4776* for details about the new WEB-BROWSER2 control.

Any Thin Client application that uses the WEB-BROWSER2 control requires access to specific control files that can be installed by the Thin Client installer. The total size of the WEB-BROWSER2 control files is about 150MB. If you create only Thin Client applications that do not use the WEB-BROWSER2 control type, you do not need to install the control files.

Use the Thin Client installer that best accommodates your needs. Each "Full" installer includes the WEB-BROWSER2 control files, and each "Compact" installer does not:

32-bit

extend® Thin Client Version 10.5.0 Full x86

extend® Thin Client Version 10.5.0 Compact x86

64-bit

extend® Thin Client Version 10.5.0 Full x64

extend® Thin Client Version 10.5.0 Compact x64

ECN-4776 New WEB-BROWSER2 installation option

Defect Number: 195080

Product: ACUCOBOL-GT

Modules: Runtime

Machines Affected: 10.4.1 and earlier

DESCRIPTION:

Starting with version 10.5.0, ACUCOBOL-GT supports the new WEB-BROWSER2 control type. See *ECN-4723* and *ECN-4774* for details about the new WEB-BROWSER2 control.

To enable the WEB-BROWSER2 control type, we have added a new installation option on the **Product Selection** page of the extend Windows Installer. Check **ACUCOBOL-GT WEB-BROWSER2** to ensure installation of the WEB-BROWSER2 control files.

ECN-4778 Destroy main application window now allowed

Defect Number: 285159

Product: ACUCOBOL-GT

Modules: Runtime

Machines Affected: 10.4.1 and earlier

DESCRIPTION:

In this version, you can now destroy the main application window using the DESTROY verb. When you destroy the main application window followed by its handle, the application runs without a canvas until a new user-defined canvas or a default character screen is created.

For details, see the *DESTROY Statement* and *IGNORE_DESTROY_MAIN_CANVAS* topics in your ACUCOBOL-GT documentation.

ECN-4779 Windows installer option to install 32-bit and/or 64-bit AcuBench and AcuXDBC

Defect Number: 308003

Product: ACUCOBOL-GT

Module: Windows 64-bit setup

Machines Affected: Windows

Known Versions Affected: 10.4.1 and earlier

DESCRIPTION:

In the 64-bit setup for Windows, the **Installation Settings** dialog box now enables you to choose between 32- and 64-bit versions of AcuBench and AcuXDBC.

AcuSQL Enhancements

This section includes the enhancements related to AcuSQL for this release.

ECN-SQL172 Support of ODBC Driver 18 for SQL Server

Product: AcuSQL

Module: MSSQL

Machines Affected: All

Versions Affected: All

DESCRIPTION:

This version of AcuSQL supports the ODBC Driver for SQL Server version 18.

AcuToWeb Enhancements

This section includes the enhancements related to AcuToWeb. In addition to the list of ECN-AW topics, the following topics in the ACUCOBOL-GT section also apply to AcuToWeb:

- [ECN-4720](#)
- [ECN-4723](#)
- [ECN-4734](#)
- [ECN-4748](#)
- [ECN-4750](#)
- [ECN-4756](#)

ECN-AW163 AcuToWeb Action when URL is closed

Defect Number: 18003

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

When a program is closed, or when the Web site closes because of inactivity, the default action is to either display a blank page or to close the tab. You can now redirect this action to a URL using the new `web.custom_return` entry in the AcuToWeb configuration file.

You may specify more than one `web.custom_return` option to specify different redirects, each identified by a unique alias name.

SYNTAX:

```
[web.custom_return]
"{default = | alias=} "redirect-URL"
```

PARAMETERS:

default Redirects any closed website to its corresponding `redirect-URL`, unless overridden for a specific alias.

alias The name of an alias that identifies the specified URL.

redirect-URL The URL to which the page is redirected.



Note: `http://` or `https://` is required to redirect externally. Otherwise, the redirect is assumed to be internal to AcuToWeb.

EXAMPLE:

The following example redirects any closed website to "`https://www.microfocus.com`" except for `MY_ALIAS`, which is redirected to "`https://www.google.com`".

```
[web.custom_return]
default = "https://www.microfocus.com"
MY_ALIAS = "https://www.google.com"
```

For additional details, see *Gateway Configuration File Section Headers and Options* in your *AcuToWeb* documentation.

ECN-AW166 AcuToWeb Desktop auto-update

Defect Number: 12419

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

Similar to the Thin client auto-update feature, the AcuToWeb Desktop provides a new auto-update feature in this release. To use this feature, add the following configuration variables to your AcuToWeb Gateway configuration file:



Note: Default settings appear in **bold** lettering.

Configuration Variable	Value
atwdt_auto_update_query	True/False
atwdt_auto_update_query_title	Micro Focus Training
atwdt_auto_update_query_message	Your AcuToWeb Desktop requires an update. Please click OK to launch the update.
atwdt_check_installer_timestamp	True/False
atwdt_disable_auto_update	True/False
atwdt_requires_build_number	<i>build-number</i>  Note: To show the Build number, right click the Connection Setup screen and select View page source .
atwdt_auto_update_failed_title	Upgrade AcuToWeb Desktop
atwdt_auto_update_failed_message	The update was not completed. Please try using the installer again.
atwdt_auto_update_notify_fail	True/False
atwdt_download_cancel_message	Please wait while the download is being cancelled...
atwdt_download_dialog_title	Micro Focus Training
atwdt_download_description	The latest version of AcuConnect Thin Client is about to be downloaded
atwdt_download_dialog	True/False
atwdt_installer_args	text
atwdt_installer_client_file	text
atwdt_installer_run_async	True/False  Note: When set to True, the program process does not wait until the Desktop update procedure finishes
atwdt_installer_server_file ¹	Installer.exe

Configuration Variable	Value
atwdt_installer_target_dir ¹	\etc\ATW Desktop\
atwdt_installer_ui_level ¹	n

¹ See the *Microsoft Windows Installer* topic in your ACUCOBOL-GT documentation for more information.

For complete details, see the *AcuToWeb Desktop Auto-update* topic in your AcuToWeb documentation.

ECN-AW167 TOML configuration file

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

Starting with this release, the configuration file for AcuToWeb must be a TOML format file. When you start the 10.5.0 AcuToWeb gateway, any JSON or simple text configuration file is automatically migrated to the TOML (.toml) file format. For full details, see the *Gateway Configuration Options*, *Example Gateway Configuration File*, and *Starting and Stopping the Gateway* topics in your *AcuToWeb User's Guide*.

ECN-AW168 AcuToWeb Desktop standalone application

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

AcuToWeb Desktop is now a standalone application with its own versioning.

ECN-AW169 AcuToWeb Desktop Allowed Gateways

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

To improve security for the AcuToWeb Gateway Desktop connection, we added a new item to the AcuToWeb Desktop menu - **Allowed Gateways**. To add a gateway to the list, provide its IP address or domain name. AcuToWeb ignores initialization requests for gateways not found on the list. However, the default is * (asterisk), which allows all gateways.

ECN-AW170 AcuToWeb Desktop Log-to-file option

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

You can set the new **Log to File** option on the AcuToWeb Desktop menu to automatically write all log information to the `AcuToWebDesktop.log` file, located by default in the `%LocalAppData%\Micro Focus\extend AcuToWeb Desktop` directory.

Each log entry begins with the process ID of the originating Desktop instance.

ECN-AW171 COBOL Application Window resize

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

The COBOL Application Window has been updated to fit properly into the browser window, and keeping the correct aspect ratio using the browser window resolution. When resizing, the base resolution is used. This is the resolution specified by the `[web.resize]` Gateway configuration property, and is used when building the application. On smaller resolutions, the application window is reduced. On larger resolutions, the application window is enlarged.

When the parent window is resized, the COBOL application window adjusts to fit the new size. The scale used in the COBOL application window is based on the current screen resolution or Web browser dimensions, and the base resolution set by the `[web.resize]` Gateway configuration property.

For details, see the `[web.resize]` section of the *Gateway Configuration File Section Headers and Options* topic in your *AcuToWeb User's Guide*.

ECN-AW172 Python upgrade

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

Python used with AcuToWeb has been upgraded to version 3.8.13 to improve security and reduce vulnerability.

ECN-AW173 Close AcuToWeb Client applications when you close the browser

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

You can now close an AcuToWeb client application by closing the browser or browser tab in which it is running. The behavior is dictated by the value of the `QUIT_MODE` configuration variable.

For more information, see the `QUIT_MODE` topic in your *ACUCUBOL-GT User's Guide*.

AcuXDBC Enhancements

This section includes the enhancements related to AcuXDBC.

ECN-XD132 New support for line-sequential files

Defect Number: 125025

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

This release of AcuXDBC supports line-sequential files.

Resolved Issues

The following are resolved issues for the extend products.

Acu4GL ECN List

This section includes the ECNs relating to Acu4GL:

ECN-GL587 Acu4GL MS SQL date conversion failure

Defect Number: 203080

Product: Acu4GL

Module: MSSQL

Machines Affected: All

Known Versions Affected: 10.3.0 - 10.4.1

DESCRIPTION:

Using a datetime key on elements from a datetime column in the database caused a datetime conversion failure, reported in the trace file. This has been fixed.

ECN-GL589 Multiple rows updated or deleted caused errors

Defect Numbers: 285156 and 297028

Product: Acu4GL

Module: MSSQL

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

The following issues that occurred when a primary key allows duplicates have been fixed:

- Rewriting or deleting a row sometimes affected more than a single row.
- Executing READ followed by READ NEXT returned the wrong record.

To use this fix, both of the following conditions must be met:

- An identity column must be included. This can be either a hidden column using A-MSSQL-ADD-IDENTITY when the table is created, or an explicit column using the IDENTIFY-COLUMN XFD directive.
- The record to update or delete must be the last record read.

Failure to meet these conditions results in a **9D/07** run-time error. See the *Runtime Errors* topic in *Appendix B* of your *Acu4GL User's Guide* for details.

ECN-GL593 Special characters in user names and passwords

Defect Number: 352036

Product: Acu4GL

Module: MSSQL

Machines Affected: All Intel

Known Versions Affected: All

DESCRIPTION:

All special characters used in a user name or a password must be surrounded by {} brackets. If the } closing bracket is used as a special character, it must be doubled to escape it. For example:

```
my{@}user{ } }name
```

Translates to:

```
my@user }name
```

AcuBench ECN List

This section includes the ECNs relating to AcuBench:

ECN-WB730 GDI Resource leak

Defect Number: 120015

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

Microsoft enforces a limit of 10,000 on Graphic Device Interface (GDI) resources. While this limit is relatively high, leakage is still possible, albeit very rare, when using AcuBench. This type of leakage stops a program from executing. You might encounter leakage with exceptionally large projects, e.g., projects with program structure files close to 1000 in number.

ECN-WB731 Undefined default value for MOVEABLE-COLUMNS

Defect Number: 181108

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.4.0 and later

DESCRIPTION:

Due to an uninitialized variable, the default value for MOVEABLE-COLUMNS was undefined. This has been corrected.

ECN-WB732 Wrong code generated for ATW-CSS-ID

Defect Number: 182118

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

When creating a literal ATW-CSS-ID value for a control, AcuBench erroneously generated code for ATW-CSS-CLASS instead. This has been corrected.

ECN-WB733 Using LINKAGE EDITOR, copy files linked using full path

Defect Number: 190025

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

When linking a copybook into the linkage editor, the copybook was copied into the COBOL program using the full pathname, making it difficult to move projects around. This has been fixed.

ECN-WB734 Bad replace when searching Up

Defect Number: 217032

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 9.0 and later

DESCRIPTION:

When replacing text in a document by searching Up, a problem with the replacement occurred if the replacement text string included the text that was being replaced. For example, if you were to specify replacement of `upper` with `uppermost`, a subsequent replace would replace the just-replaced text, resulting in `uppermostmost`. This has been corrected.

ECN-WB735 AcuBench shows ATW-CSS properties for sub-items of tree-view controls

Defect Number: 253021

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.1.0 and later

DESCRIPTION:

When adding a tree-view control to a graphical screen, AcuBench erroneously showed the ATW-CSS-ID and ATW-CSS-CLASS properties. This has been corrected.

ECN-WB736 Correction to ECN WB724 and CONTROL-ID vs EVENT-CONTROL-ID

Defect Number: 264055

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

ECN-WB724 corrected a problem in which the code generated was testing Event-Control-ID instead of Control-ID. This solution changed the test to use Control-ID always, which was incorrect. This has been corrected to now test using an event determined by context.

ECN-WB737 Modifying the name of a report upset the headers and footers

Defect Number: 286195

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.2.0 and later

DESCRIPTION:

Version 10.2.0 included ECN WB670, which changed how report HTML is generated. This fix introduced an error by using the wrong DIV CLASS tag when a report name was changed. This has been corrected.

ECN-WB739 Missing generated code for bitmaps

Defect Number: 308015

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

AcuBench failed to include the BITMAP-SCALE property for all bitmaps and bitmap button types. This has been corrected.

ECN-WB894 AcuToWeb CSS properties missing from default screen designer page

Defect Number: 363165

Product: AcuBench

Module: AcuBench.exe

Machines Affected: Windows

Known Versions Affected: 10.4.0 and later

DESCRIPTION:

The AcuToWeb CSS properties (ATW-CSS-CLASS, ATW-CSS-ID) were missing from the default screen designer page. This has been corrected.

ACUCOBOL-GT ECN List

This section includes the ECNs relating to ACUCOBOL-GT:

ECN-4746 vutil -rebuild fails to remove index segment

Defect Number: 162030

Product: ACUCOBOL-GT

Module: vutil

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When rebuilding a Vision 4, 5, or 6 format file to a Vision 3 format file without specifying a key, `vutil` failed to remove the index segment when replacing the original file. This change fixes this issue by removing the old index segment.

ECN-4747 New XFD functions cause AcuXDBC SUBTABLE inaccuracies

Defect Number: 146163

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: 10.4.0 and later

DESCRIPTION:

New XFD functions caused a problem when using certain types of C constructs. This has been fixed by reinstating the behavior from earlier versions of extend.

ECN-4751 CMD-GOTO lost in Thin Client running in debugger

Defect Number: 156083

Product: ACUCOBOL-GT

Module: Runtime, Thin Client

Machines Affected: Windows

Known Versions Affected: 10.1.0, both earlier and later

DESCRIPTION:

When running in a Thin Client environment, and debugging your COBOL program, the CMD-GOTO event sometimes got lost when using the debugger toolbar buttons to step through the debugger. This has been corrected.



Note: Set configuration variable ECN-4751 to FALSE to turn off this change at runtime..

ECN-4752 NTF event changed incorrectly

Defect Number: 158102

Product: ACUCOBOL-GT

Module: Runtime, Thin Client

Machines Affected: Windows

Known Versions Affected: 10.2.0 and later

DESCRIPTION:

When a COBOL program executes a DISPLAY statement of a SCREEN SECTION item, all of the controls are updated. Providing a new, empty value in an empty entry field sometimes caused an event to be erroneously changed by NTF.

ECN-4754 Debugger toolbar buttons ignored

Defect Number: 156095

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.4.0 and later

DESCRIPTION:

Under unusual circumstances, the runtime debugger would get confused while in Thin Client mode, and stop responding to debugger toolbar button clicks. This has been corrected.

ECN-4757 Event procedures called incorrectly

Defect Number: 181059

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

When a BEFORE, AFTER, EXCEPTION, or EVENT procedure executed a statement that checked for input, this sometimes interrupted the procedure to execute a different procedure. This often resulted in crashes, incorrect placement of controls, or and other such errors. This problem occurred more commonly when using the Thin Client, but also manifested on occasion when using just the runtime.



Note: These procedures are intended to be short and fast, with all major work done outside of ACCEPT statements.

Statements that caused this problem include but are not limited to INQUIRE, MODIFY, and DISPLAY. In addition, file I/O sometimes caused this problem when the FILE-IO-PROCESSES-MESSAGES configuration variable was set to ON.

To correct this problem, set the TC-STORE-INQUIRE-EVENTS to ON. See *TC-STORE-INQUIRE-EVENTS* in your ACUCOBOL-GT documentation for details.

ECN-4760 EVALUATE causes crash with reference modification

Defect Number: 183060

Product: ACUCOBOL-GT

Module: Compiler

Machines Affected: All

Known Versions Affected: All

DESCRIPTION:

Using EVALUATE with a reference-modified data item larger than 32767 bytes caused the compiler to generate code that sometimes caused a run-time crash.

This problem has been corrected in this release; however, you must recompile any affected programs after reducing the size of the base item.

ECN-4762 System call exit code 0 when compiled with -Cr

Defect Number: 185022

Product: ACUCOBOL-GT

Module: Runtime, Compiler

Machines Affected: All

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

When the program makes a call to SYSTEM to run a script, certain checks are made to ensure the call is valid. The changes that enabled C\$DARG (ECN-4712) for RM mode includes incrementing the number of parameters in the compiler, and then decrementing them in the runtime when the CALL_GIVING_PARAM flag is detected. However, in object versions earlier than 7.1, this flag cannot be passed to the runtime by the compiler because the extended call operation code does not exist. Because the number of parameters was not corrected, the call failed when compiling the program with the `-Cr` flag, which enables RM compatibility mode, and a `-z` value less than 71, which sets the object version to earlier than 7.1. This problem has been corrected.

ECN-4763 SCREEN WINDOW=999,999 fails to automatically maximize

Defect Numbers: 182101, 207030, 208026

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.3.0 and later

DESCRIPTION:

Defect 182101

The application window failed to maximize properly when the SCREEN WINDOW configuration file option was set to 999,999. It also failed to minimize when set to -1,-1, and instead presented as if attempting to maximize the window. This has been fixed.

Defect 207030

After receiving the patch for Defect 182101, the window failed to restore to the size specified in the configuration file after launching as maximized. This has also been fixed.

Defect 208026

After receiving the patch for Defect 182101, a message box displaying the size of the window sometimes received an incorrect size value. This has been corrected as well.

ECN-4764 MSG-BITMAP-CLICKED event does not follow moved columns

Defect Number: 183028

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.4.0 and later

DESCRIPTION:

When bitmaps within grid cells were clicked or double clicked, the MSG-BITMAP-CLICKED and MSG-BITMAP-DBLCLICK events were not generated. This has been corrected.

ECN-4765 Memory Access Violations in programs using many grids

Defect Number: 204109

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

An issue with displaying multiple grids in a single program sometimes caused multiple memory access violations (MAVs). This has been corrected.

In addition, modifying the ENSURE-VISIBLE property of a TreeView control with an invalid item ID repeatedly and rapidly often caused a program to crash. This has been corrected as well.

ECN-4767 Problem loading customized icons

Defect Number: 212014

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

A problem loading a custom icon in the runtime and the thin client when the ICON variable in the program's configuration file was set has been fixed.

ECN-4769 Thin Client timeout variables issues

Defect Number: 193002

Product: ACUCOBOL-GT

Module: Thin Client

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

The following two issues with the Thin Client timeout variables have been resolved:

- The Thin Client failed to listen for runtime messages issued during the waiting period after starting a synchronous system call. As a result, a timeout error was issued.

- When setting new values for the TC-CHECK-ALIVE-INTERVAL and TC-SERVER-TIMEOUT variables, the Thin Client failed to kill the existing timer, and also failed to start a new one. If the timer was turned off (set to 0), the Thin Client sometimes reported a timeout.

ECN-4771 Using a 64-bit AcuRCL with a 32-bit runtime caused Thin Client to be unresponsive

Defect Number: 245094

Product: ACUCOBOL-GT

Module: Thin Client

Machines Affected: Windows

Known Versions Affected: All

DESCRIPTION:

A problem that occurred when using a 64bit AcuRCL with a target 32-bit runtime caused the thin client to be unresponsive. This has been fixed.

ECN-4772 Web Runtime, Web Thin Client, and AcuBenchPrint.dll removed from product

Product: ACUCOBOL-GT

Modules: All

Machines Affected: Windows

Known Versions Affected: 10.4.1 and earlier

DESCRIPTION:

Because Microsoft is ending support for Internet Explorer we have removed the technologies that rely on Internet Explorer from the 10.5.0 release as follows:

- Web runtime
- Web Thin client
- AcuBenchPrint.dll
- IS-PLUGIN

If you have relied on any of these technologies, you must remove any dependencies.

ECN-4773 Issues with autostepping and resizing the debugger window

Defect Number: 203134

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

The following issues relating to autostepping and resizing the debugger window have been fixed:

- When autostepping, resizing the debugger window caused the command window to appear to do one of the following:
 - Overwrite the source window
 - Disappear completely
 - Merge with the source window, meaning that the source code remained visible, but typing commands overwrote it
- When autostepping, inputting a step speed command caused the next line of text to show only the latter half of the autostepping sentence.
- Closing the debugger window after resizing it often resulted in an assertion failure error

ECN-4775 Duplicate Windows *etc* and *sample* directories under %ProgramFiles(x86)%

Defect Number: 193074

Product: ACUCOBOL-GT

Module: Compiler

Machines Affected: Windows

Known Versions Affected: 10.4.1 and earlier

DESCRIPTION:

ECN-4741 changed the ACUCOBOL-GT installation by installing the *etc* files into the %ProgramData%\Micro Focus\extend\x.x.x\config-examples directory, and *sample* files into the %PUBLIC%\Documents\Micro Focus\extend x.x.x\sample directory. This resulted in two copies of both directories because one of each was also created under %ProgramFiles(x86)%. The duplicate directories under %ProgramFiles(x86)% have been removed.

ECN-4777 First column cannot be unhidden by clicking the hidden column mark

Defect Number: 204248

Product: ACUCOBOL-GT

Module: Runtime

Machines Affected: Windows

Known Versions Affected: 10.4.1 and later

DESCRIPTION:

Columns can be hidden by dragging their dividers all the way to the left. Clicking on the resulting marker should unhide the column, but if the first column in a grid was hidden then clicking the marker had no effect. This has now been resolved.

ECN-4780 Multiple processes writing to a line-sequential file

Defect Number: 306064

Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: 10.4.0 and later

DESCRIPTION:

When multiple Windows runtimes were writing to the same line-sequential file, files could be overwritten, losing data. This has been fixed.

ECN-4781 `marshall.exe` **no longer required**

Product: ACUCOBOL-GT
Module: Runtime
Machines Affected: Windows
Known Versions Affected: 6.1.0 and later

DESCRIPTION:

Starting in version 6.1.0, support was added for .NET assemblies. This required a separate COM utility to marshal data between the .NET assemblies and the COBOL program. This is no longer needed, as the ACUCOBOL-GT runtime now does this directly.

AcuConnect ECN List

This section includes the ECNs relating to AcuConnect:

ECN-AC103 Cancel button unresponsive on a RECEIVE statement with NO WAIT

Defect Number: 10008
Product: AcuConnect
Module: Thin Client
Machines Affected: All
Known Versions Affected: All

DESCRIPTION:

A problem using a RECEIVE statement specified with BEFORE TIME 0 or NO WAIT caused the **Cancel** button to become unresponsive during file I/O operations on the Thin Client. This has been fixed; however, to take advantage of this fix, you must set the FILE_IO_PROCESSES_MESSAGES runtime configuration variable to 1 (true) to ensure that key presses are available during file I/O operations.



Notes:

- Interactions between the Thin Client and the Runtime still incur a delay, meaning it can take two to three seconds for the button press to take effect when many file I/O requests are being processed.
- Using the FILE_IO_PROCESSES_MESSAGES variable could cause a slight degradation in the performance of the program at certain times.

AcuSQL ECN List

This section includes the ECNs relating to AcuSQL:

ECN-SQL168 ESQL SELECT INTO results in blank data item

Defect Number: 220047

Product: AcuSQL

Module: Runtime

Machines Affected: All

Known Versions Affected: 10.4.0 - 10.4.1

DESCRIPTION:

Moving data from an SQL database to a COBOL data item of the same length or smaller using a SELECT statement and the INTO clause resulted in a blank data-item. This has been fixed.

ECN-SQL169 Memory access violation (MAV) during SQL fetch data

Defect Number: 301077

Product: AcuSQL

Module: Runtime

Machines Affected: All

Known Versions Affected: 10.4.0 - 10.4.1

DESCRIPTION:

A problem that caused a memory access violation when fetching data from an SQL database has been fixed.

ECN-SQL171 Special characters in user names and passwords

Defect Number: 352036

Product: AcuSQL

Module: Runtime

Machines Affected: All Intel

Known Versions Affected: All

DESCRIPTION:

All special characters used in a user name or a password must be surrounded by {} brackets. If the } closing bracket is used as a special character, it must be doubled to escape it. For example:

```
my{@}user{ } }name
```

Translates to:
my@user }name

AcuToWeb Fixes

Defect Numbers: 165055, 165056, 167040, 176023, 176026, 176062, 182034, 183026, 199016, 493078, 493081, 496079, 499048, 499062, 500053, 503012, 503021, 505045, 505070, 505081, 507097, 507114, 509090, 509129, 509141, 512027, 513085, 514028, 518010, 518023, 518024, 519001, 521001, 534001, 535006, 561010, 576003, 589004, 589014, 608005, 656027

Product: AcuToWeb

Module: AcuToWeb

Machines Affected: All

DESCRIPTION:

The following issues have been fixed in this release:

- The Grid crashed on a `MODIFY (x, y)`
- JavaScript Injection was prevented on list box and radio controls
- The default sorting on a Combo Box stopped working
- Combos using either `ALT` or `OPTION` keys not working on macOS desktops
- `MSG-GOTO-CELL-MOUSE` not working in scrollable grids on mobile devices
- `VSCROLL` stopped working on iOS mobile devices
- AcuToWeb: Vertical Left titles were not displayed for `TAB` controls
- AcuToWeb: Menu bar required two clicks to activate items correctly
- Special Characters in List Box control
- The `MSG-FINISH-ENTRY` event was not triggered using **CTRL+V** on a Grid cell
- `CF - Paged Grid with COLUMN-HEADINGS` lost the first record while loading
- [ATW 10.4.1.972] Multiline entry-field with vertical scrollbar missing
- [ATW] Vulnerability in Twisted Web
- Problem with layout manager label control placement with the `PLUS` property when resizing the COBOL application window
- [ATW] Block ATW Desktop from attaching to specific URLs
- [ATW] AcuToWeb Desktop does not resolve "Waiting for alias"
- `HINTS_ON 0` not disabling hints in AcuToWeb
- Problem with grid control `MAX-WIDTH` and `VIRTUAL-WIDTH`
- Fails to load `require.js` first time
- AcuToWeb Desktop connection on terminal server connections (RDP)
- ATW Desktop does not attach to the browser instance
- Loading of large grids in AcuToWeb causes the browser to crash
- Implement `TC_QUIT_MODE` for use with ATW when closing browser etc.
- Displaying rows without column dividers caused erroneous column placement
- Multiline Push Button individual line styling
- Problem catching left/right arrow in `accept`
- [ATW 10.4.1.950] Multi-line entry field losing data
- [ATW 10.3.1] Creation of physical logs for ATWDesktop
- The dividers for the Grid Headers on AcuToWeb were the wrong size
- Application hung when executing `@XMLHTTP` server-side on SUSE
- Reconnecting could close down the application
- Displayed files under **Inspect > Network > Websocket** were eliminated to improve security

- The last column of Grid was behaving incorrectly
- A right click on a column divider caused a MSG-GOTO-CELL-MOUSE event
- Grid sorting functionality did not work properly
- Paged Grid with COLUMN-HEADINGS loses the first record while loading

AcuXDBC ECN List

This section includes the ECNs relating to AcuXDBC:

ECN-XD131 AcuXDBC 64 bit shows ODBC error when vision logging is on

Defect Number: 119042

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

When `acuxdbc.cfg` contained the following lines:

```
vision_logging_file  
C:\temp\vision.log
```

`vision_logging_level 9` failed, showing an ODBC error. This has been fixed.

ECN-XD135 AcuXDBC SUBTABLES import incorrect

Defect Number: 146163

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

When using `$XFD SUBTABLE`, not all table information was imported correctly. To correct this, delete CATALOG entries that use SUBTABLE, and recreate them using the latest `xdbcutil`. Otherwise, the following error appears: `GENESIS_SUBTABLES not found`.

ECN-XD136 Transaction processing error

Defect Number: 245128

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

When using transactions, a `Fetch error`, `Record locked error` could occur. This has been fixed; however, you must use AcuXDBC Server for transactions and threading. Any attempt to use AcuXDBC without AcuXDBC Server for threaded transactions throws the following error:

```
VISION: Multiple threaded connections must use AcuXDBC
Server
```

ECN-XD137 Multiple joins not processed

Defect Number: 293006

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

When using multiple JOINS, only the last JOIN was executed. This has been corrected.

ECN-XD138 Cursors remain open

Defect Number: 354006

Product: AcuXDBC

Module: AcuXDBC

Machines Affected: All

DESCRIPTION:

Cursors sometimes remained open when a file was not found, eventually preventing query processing and requiring a restart. This has been corrected.

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.

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Information Needed by Micro Focus Customer Care

When contacting Micro Focus Customer Care, please include the following information if possible. The more information you can give, the better Micro Focus Customer Care can help you.

- The name and version number of all products that you think might be causing an issue.
- Your computer make and model.
- System information such as operating system name and version, processors, and memory details.
- Any detailed description of the issue, including steps to reproduce the issue.
- Exact wording of any error messages involved.
- Your serial number or works order (WO) number.

To find out these numbers, look in the subject line and body of your Electronic Product Delivery Notice email that you received from Micro Focus, or on the box in which the product was supplied, and on the red card supplied in the DVD case .

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