

# Open Object Rexx

## Release Notes

### 1. About The 3.1.1 Release

Open Object Rexx Version 3.1.1 is based on the previous version of ooRexx (3.1.0). Version 3.1.1 is a bug fix release only.

**IMPORTANT:** If you already have an earlier version of Object Rexx or Open Object Rexx installed on your system, you must remove it before starting with the installation of this package. Note that this may change in future releases.

#### 1.1. New in this Release

This section describes the enhancements introduced since Open Object Rexx 3.0.0 for Unix/Linux, and 3.0.1 for Windows.

You should refer to the CHANGES document accompanying the release for a complete list of the changes and bug fixes.

##### 1.1.1. New Installation Path for Unix/Linux

The installation path for the Unix/Linux version of ooRexx has been changed from /usr/local to /opt/ooRexx. This will make ooRexx much more compliant with the Linux Standard Base.

##### 1.1.2. Additions to the REXXUTIL Function Package

There are some new functions included in the RexxUtil library. They begin with the prefix SysIs\*.

##### 1.1.3. Getting Help Documentation

Each document in the ooRexx documentation set now contains a section on getting help for ooRexx. It is located in the preface of each document.

## **2. Windows Requirements, Installation and Configuration**

### **2.1. Hardware Requirements**

- 22 MB free disk space for the program
- 13.5 MB free disk space for online documentation
- IBM-compatible, Pentium or AMD processor, or higher

### **2.2. Software Requirements**

- Windows 98
- Windows Me
- Windows NT(R) 4.0
- Windows 2000
- Windows 2003
- Windows XP

### **2.3. Installation, Update and Configuration Information**

This new version of Open Object Rexx cannot coexist with a previous version of Open Object Rexx or IBM Object REXX in your installation. If you have previously installed Open Object Rexx, you must first uninstall the Open Object Rexx program. If there are two different versions of Open Object Rexx installed, this leads to unpredictable results. The installation program of Open Object Rexx starts and the Open Object Rexx Installation logo appears on your screen (this automatic startup may take a while). Follow the installation program instructions to complete the Open Object Rexx installation. Open Object Rexx can be installed as a common or as a personal program. To install Open Object Rexx as a common program, the current user must have administrator rights.

It is highly recommended that ooRexx be installed into Windows while logged on as a user with Administrator rights. Additional installation steps are performed when an Administrator installs ooRexx that cannot be performed when installed as a user without Administrator rights. They are:

1. The subdirectory that ooRexx is installed into is added to the System PATH environment variable.
2. The file extension REX is added to the System PATHEXT environment variable.
3. The rxapi Service installation page is shown allowing rxapi to be installed as a Windows service.
4. The environment variable REXX\_HOME is set for all users.

It is important that if ooRexx is installed by a user with Administrative rights, that ooRexx is uninstalled by a user with Administrative rights, otherwise the installation steps described above will not be undone when ooRexx is uninstalled.

### 2.3.1. Running the Installation Program on Windows

To install Open Object Rexx with the default settings, simply double-click on ooRexx310.exe from Windows Explorer.

The Windows installer has two options when installing. If you want to specify the options on installation, then open a command prompt or select "Start/Run" from the taskbar and type in ooRexx310.exe with the parameters described below.

/S : Silent mode

This will install Open Object Rexx without any user intervention with default values for any user-selectable values.

/D : Default directory

If you wish to install Open Object Rexx into a different directory than the default (C:\Program Files\ooRexx), then specify the directory after this switch. This must be the last parameter used in the command line and must not contain any quotes, even if the path contains spaces.

### 2.3.2. Windows Uninstallation Information

Select "Start->Settings->Control Panel->Add Remove Programs" on the Windows Desktop. Select "Open Object Rexx for Windows" and then select "Remove".

## 2.4. Running Open Object Rexx as a Child Process of a Service on Windows

The memory manager of Open Object Rexx can share out some resources among all the Open Object Rexx processes to enable global functions, system exits, subcommand handlers, and global queues to take place. If you start Open Object Rexx from a service, two or more Open Object Rexx processes might run under different user accounts. Therefore it is required that the memory manager is not protected and can be accessed by every user. This means that Open Object Rexx global data is system global and unsecured.

If you want Open Object Rexx to be started from a service, Open Object Rexx must be installed as a common program or you must modify the system path manually to include the directory where Open Object Rexx has been installed.

If you are writing a service that calls RexxStart(), ensure that the SERVICE\_INTERACTIVE\_PROCESS flag is set for your service. To prevent access violations, use a NULL security descriptor and assign it to your service process.

## 2.5. Open Object Rexx and Other Rexx Interpreters

If you have other Rexx interpreters installed, you may have to set the PATH manually because Open Object Rexx and the other Rexx interpreters may both use the name "rexx" for invoking the interpreter. Interpreter error messages that begin with "Rexx: " indicate that another Rexx interpreter was called

instead of Open Object Rexx. You can verify which Rexx interpreter is running either by the form of the error messages, by running `rexstry.rex` and executing `SAY VERSION`, or by invoking `rex /v`, which then should display information about the Rexx interpreter that is invoked. If no information is displayed, it is not Open Object Rexx. If you don't want the other Rexx interpreter to be invoked, you should remove it from the `PATH`, delete it, or rename `rex.exe` in the `ObjRexx` directory to `orx.exe` and use `orx` to invoke the interpreter.

## 2.6. Exploring Open Object Rexx

Once you have installed the Open Object Rexx files you can run Object Rexx scripts by issuing the command `REXX` followed by your Object Rexx script at the command prompt. To interactively try Object Rexx statements, enter `rex rexstry.rex` on the command line. Enter `exit` to end the program.

To help you explore programming in Open Object Rexx, the following sample programs are provided :

`ccreply.rex`

concurrent program using `REPLY`

`complex.rex`

complex number class

`deskicon.rex`

`AddDesktopIcon` method of the `WindowsProgramManager` class

`desktop.rex`

uses the `WindowsProgramManager` class

`drives.rex`

demonstrates the usage of `Sys` functions

`eventlog.rex`

uses the `WindowsEventLog` class

`factor.rex`

factorial program

`greply.rex`

concurrent program using `WAIT` and `NOWAIT`

`guess.rex`

a guessing game

`makestring.rex`

demonstrated the usage of the `makestring` method

`ktguard.rex`

concurrent program using START and GUARD

`month.rex`

displays a calendar for the month of January

`philfork.rex`

program that demonstrates Open Object Rexx concurrency

`pipe.rex`

a pipeline implementation

`qdate.rex`

date query program

`qtime.rex`

time query program

`registry.rex`

uses the WindowsRegistry class

`rexstry.rex`

interactively try out Rexx statements

`semcls.rex`

semaphore class

`stack.rex`

program that uses a stack class

`usecomp.rex`

program that uses the complex number class (see note below)

`usepipe.rex`

program that uses the pipeline implementation (see note below)

`usewmgr.rex`

program that uses the WindowsManager class

**Note:** To run these programs, you must either add the `samples` directory to the PATH or execute them directly from the `samples` directory.

The directory `samples\ole\` contains samples for the Open Object Rexx OLE/ActiveX Interface. Open the sample programs; They contain comments. The directory `samples\wsh\` contains samples for Windows Scripting Host.

Open Object Rexx also installs several samples that demonstrate the use of OODialog. You can explore these samples by launching the “OODialog Samples” icon in the Object Rexx for Windows\Samples group.

To help you with programming external function libraries, the WPIPE samples are provided in the `samples\api\wpipe` directory. See the README.TXT in this directory.

## **3. Unix/Linux Requirements, Installation and Configuration**

### **3.1. Hardware Requirements**

- 12 MB free disk space for the program (20 MB for AIX)
- 13.5 MB free disk space for online documentation
- IBM-compatible, Pentium or AMD processor, or higher for an x86 platform
- Power 4 processor or higher for a PPC platform
- Sparc processor for a SUN Solaris (Sparc) platform

### **3.2. Software Requirements**

- Linux ELF system (i386) and your kernel must support System V IPC. Open Object Rexx must run with Linux kernel version 2.4.1 or higher.
- SUN Sparc system running Solaris V2.8 or higher.

### **3.3. Installation, Update and Configuration Information**

This new version of Open Object Rexx cannot coexist with a previous version of Open Object Rexx or IBM Object REXX in your installation. If you have previously installed Object Rexx, you must first uninstall this Object Rexx program. If there are two different versions of Object Rexx installed, this leads to unpredictable results. The installation program of Object Rexx starts and the Object Rexx Installation logo appears on your screen (this automatic startup may take a while). Follow the installation program instructions to complete the Object Rexx installation. Object Rexx can be installed as a common or as a personal program. To install Object Rexx as a common program, the current user must have administrator rights.

### 3.3.1. Installation/Removal of the RPM Package

**Note:** The installation of Open Object Rexx requires that all steps be run with root authority.

To install the 'rpm' package, use your rpm-package-manager. Select the 'ooRexx-3.1.n.0-n.i386.rpm' package for the installation. Refer to your package manager for further information. The package manager adds orexx to your local rpm-database. The command with the command line rpm-package-manager is:

```
rpm -i ooRexx-3.1.n-n.i386.rpm
```

Open Object Rexx is installed in the directory /opt/ooRexx. Links are created in /usr/lib and /usr/bin for the ooRexx shared libraries and executables respectively. An additional link is created in /usr/include for the rexx.hheader file.

The command rpm can also be used to remove the package from the database if it is entered at the command line:

```
rpm -e ooRexx-3.1.n-n
```

### 3.3.2. Installation of the 'tgz' Package

**Note:** The installation of Open Object Rexx requires that all steps be run with root authority.

If you have the package maintenance tool 'pkgtool' on your system, you can use it to install or deinstall Open Object Rexx via a graphical tool. Start pkgtool as 'root' and install the 'ooRexx-3.1.n-n.i386.tgz' package. All files will be copied to the directory '/opt/ooRexx/'.

If 'pkgtool' is not available, you can install Open Object Rexx by copying the ooRexx-3.1.n-n.i386.tgz file to the root directory (/) and decompress the package with the following command:

```
tar -zxvf ooRexx-3.1.n-n.i386.tgz
```

You must manually add the following links:

```
cd /opt/ooRexx/bin
ln -sf ./rexx /usr/bin/rexx
ln -sf ./rexxc /usr/bin/rexxc
ln -sf ./rxqueue /usr/bin/rxqueue
ln -sf ./rxsubcom /usr/bin/rxsubcom
ln -sf ./rxdelipc /usr/bin/rxdelipc
ln -sf ./rxmigrate /usr/bin/rxmigrate
ln -sf ./rexx.img /usr/bin/rexx.img
ln -sf ./rexx.cat /usr/bin/rexx.cat
ln -sf ./rxregexp.cls /usr/bin/rxregexp.cls
ln -sf ./rxftp.cls /usr/bin/rxftp.cls
cd /opt/ooRexx/{_lib}
ln -sf ./librexx.so.#{version} {_libdir}/librexx.so.3
```

```
ln -sf ./librexx.so.%{version} %[_libdir]/librexx.so
ln -sf ./librexxapi.so.%{version} %[_libdir]/librexxapi.so.3
ln -sf ./librexxapi.so.%{version} %[_libdir]/librexxapi.so
ln -sf ./librxsock.so.%{version} %[_libdir]/librxsock.so.3
ln -sf ./librxsock.so.%{version} %[_libdir]/librxsock.so
ln -sf ./librxmath.so.%{version} %[_libdir]/librxmath.so.3
ln -sf ./librxmath.so.%{version} %[_libdir]/librxmath.so
ln -sf ./librxregexp.so.%{version} %[_libdir]/librxregexp.so.3
ln -sf ./librxregexp.so.%{version} %[_libdir]/librxregexp.so
ln -sf ./librexxutil.so.%{version} %[_libdir]/librexxutil.so.3
ln -sf ./librexxutil.so.%{version} %[_libdir]/librexxutil.so
cd /opt/ooRexx/man
ln -sf ./rexx.1 /usr/share/man/man1/rexx.1
ln -sf ./rexxc.1 /usr/share/man/man1/rexxc.1
ln -sf ./rxsubcom.1 /usr/share/man/man1/rxsubcom.1
ln -sf ./rxqueue.1 /usr/share/man/man1/rxqueue.1
ln -sf ./rxmigrate.1 /usr/share/man/man1/rxmigrate.1
cd /opt/ooRexx/include
ln -sf ./rexx.h /usr/include/rexx.h
cd /opt/ooRexx/samples
ln -sf ./rexxtry.rex /usr/bin/rexxtry.rex
ldconfig
```

### 3.3.3. Installation/Removal of the PKG Package

**Note:** The installation of Open Object Rexx requires that all steps be run with root authority.

To install the 'pkg' package, use your package-manager. Select the 'ooRexx-3.1.n-sparc-sun-solaris2.8.pkg' package for the installation. Refer to your package manager for further information. The package manager adds orexx to your local pkg-database. The command with the command line package-manager is:

```
pkgadd -d ooRexx-3.1.0-n-sparc-sun-solaris2.8.pkg
```

Open Object Rexx is installed in the directory /opt/ooRexx.

The command `pkgrm` can also be used to remove the package from the database if it is entered at the command line:

```
pkgrm ooRexx
```

## 3.4. Configuration

There is nothing to configure for a Unix/Linux installation.

### 3.5. Open Object Rexx and Other Rexx Interpreters

If you have other Rexx interpreters installed, you may have to set the PATH manually because Open Object Rexx and the other Rexx interpreters may both use the name "rex" for invoking the interpreter. Interpreter error messages that begin with "Rex: " indicate that another Rexx interpreter was called instead of Open Object Rexx. You can verify which Rexx interpreter is running either by the form of the error messages, by running `rextry` and executing `SAY VERSION`, or by invoking `rex -v`, which then should display information about the Rexx interpreter that is invoked. If no information is displayed, it is not Open Object Rexx. If you don't want the other Rexx interpreter to be invoked, you should remove it from the PATH, delete it, or rename the "rex" binary in the `/usr/bin` directory to "orx" and use `orx` to invoke the interpreter.

### 3.6. Exploring Open Object Rexx for Unix/Linux

Once you have installed the Open Object Rexx files you can run Object Rexx scripts by issuing the command `rex` followed by your Object Rexx script at the command prompt. To interactively try Object Rexx statements, open a command window and type `rex rextry`. Enter `exit` to end the program.

To help you explore programming in Open Object Rexx, the following sample programs are provided in the `/opt/ooRexx/share/ooRexx`:

`ccreply.rex`

concurrent program using REPLY

`complex.rex`

complex number class

`factor.rex`

factorial program

`greply.rex`

concurrent program using WAIT and NOWAIT

`guess.rex`

a guessing game

`ktguard.rex`

concurrent program using START and GUARD

`makestring.rex`

demonstrated the usage of the makestring method

`month.rex`

displays a calendar for the month of January

`pipe.rex`

a pipeline implementation

`qdate.rex`

date query program

`qtime.rex`

time query program

`semcls.rex`

semaphore class

`rexxcps.rex`

measure Rexx clauses per second

`rexxtry.rex`

interactively try out Rexx statements

`semcls.rex`

implements a semaphore class on ooRexx

`stack.rex`

program that uses a stack class

`usecomp.rex`

program that uses the complex number class (see note below)

`usepipe.rex`

program that uses the pipeline implementation

**Note:** To run these programs, you must either add the `/opt/ooRexx/share/ooRexx` directory. to the PATH or execute them directly from the `/opt/ooRexx/share/ooRexx` directory.

To help you with programming external function libraries, the WPIPE samples are provided in the `/opt/ooRexx/share/ooRexx/api/wpipe` directory. See the README in this directory.

## 4. Known Limitations, Problems and Workarounds

- The global directory `.environment` is process local.
- When you start Open Object Rexx, a file called RXAPI (RXAPI.EXE on Windows) is started. The process executing this file remains open after your Open Object Rexx program terminates if:

- an external function is registered (including REXXUTIL),
- a queue contains data entries,
- a named queue exists,
- a system exit is installed,
- a subcommand handler is installed, or
- a macro space is loaded.

If you need RXAPI to be closed, remove any global data (see list above) before leaving your program. Don't forget to call SysDropFuncs().

- Windows Scripting Host

The support for the Windows Scripting Host has the following limitations:

- Do not rely on a global availability of objects provided by the host.
  - Running ActiveX objects, like the Open Object Rexx scripting engine, may pose a security threat. If you do not want the engine to be enabled on your machine, do not select the ActiveX component at installation time ("ApplicationFiles\WSHFiles"). You can manually unregister the scripting DLL from the system by stating "regsvr32 /u orxscript.dll" on the command line (re-registration can be done with "regsvr32 orxscript.dll").
  - You will find several sample scripts that describe how to use Open Object Rexx with the Windows Scripting Host (WSH) in the directory SAMPLES\WSH\.
- 
- Under Unix/Linux only piped "|" input and redirected output ">" can be evaluated by Open Object Rexx. Redirected input "<" can not be evaluated.
  - Open Object Rexx on Unix/Linux uses a shared memory for function registration and data exchange between different Rexx processes. If a running Rexx process must be interrupted (by using the command "kill -9 pid"), the shared memory might be left in disorder. In this case, the interpreter tries to restore the shared memory. If this fails, use the binary "rxdelipc" to delete the shared memory.

## 5. Documentation

All documentation is now contained in PDF files and zipped HTML package files and is available online at <http://www.oorexx.org/docs.html>.

The following documents are available:

rexxref.pdf

This is the *Open Object Rexx: Reference*.

rexxpg.pdf

This is the *Open Object Rexx: Programming Guide*.

oodialog.pdf

This is the *Open Object Rexx: Windows OODialog Reference*.

rxsock.pdf

This is the *Open Object Rexx: TCP/IP Socket Library Functions Reference*.

rxftp.pdf

This is the *Open Object Rexx: FTP Class Library Reference*.

rxmath.pdf

This is the *Open Object Rexx: Mathematical Functions Reference*.

readme.pdf

This document in PDF format.

## 6. Getting Help

The Open Object Rexx Project has a number of methods to obtain help for ooRexx. These methods, in no particular order of preference, are listed below.

### 6.1. The Rexx Language Association Mailing List

The *Rexx Language Association* (<http://www.rexxla.org/>) maintains a mailing list for its members. This mailing list is only available to RexxLA members thus you will need to join RexxLA in order to get on the list. The dues for RexxLA membership are small and are charged on a yearly basis. For details on joining RexxLA please refer to the *RexxLA Home Page* (<http://rexxla.org/>) or the *RexxLA Membership Application* ([http://rexxla.org/About\\_RexxLA/member.html](http://rexxla.org/About_RexxLA/member.html)) page.

### 6.2. The Open Object Rexx SourceForge Site

The Open Object Rexx Project (<http://www.oorexx.org/>) utilizes *SourceForge* (<http://sourceforge.net/>) to house the *ooRexx Project* (<http://sourceforge.net/projects/oorexx>) source repositories, mailing lists and other project features. Here is a list of some of the most useful facilities.

The ooRexx Forums

The ooRexx project maintains a set of forums that anyone may contribute to or monitor. They are located on the *ooRexx Forums* ([http://sourceforge.net/forum/?group\\_id=119701](http://sourceforge.net/forum/?group_id=119701)) page. There are currently three forums available: Help, Developers and Open Discussion. In addition, you can monitor the forums via email.

#### The Developer Mailing List

You can subscribe to the oorexx-devel mailing list at *ooRexx Mailing List Subscriptions* ([http://sourceforge.net/mail/?group\\_id=119701](http://sourceforge.net/mail/?group_id=119701)) page. This list is for discussing ooRexx project development activities. It also supports a historical archive of past messages.

#### The Users Mailing List

You can subscribe to the oorexx-users mailing list at *ooRexx Mailing List Subscriptions* ([http://sourceforge.net/mail/?group\\_id=119701](http://sourceforge.net/mail/?group_id=119701)) page. This list is for discussing using ooRexx. It also supports a historical archive of past messages.

#### The Announcements Mailing List

You can subscribe to the oorexx-announce mailing list at *ooRexx Mailing List Subscriptions* ([http://sourceforge.net/mail/?group\\_id=119701](http://sourceforge.net/mail/?group_id=119701)) page. This list is only used to announce significant ooRexx project events.

#### The Bug Mailing List

You can subscribe to the oorexx-bugs mailing list at *ooRexx Mailing List Subscriptions* ([http://sourceforge.net/mail/?group\\_id=119701](http://sourceforge.net/mail/?group_id=119701)) page. This list is only used for monitoring changes to the ooRexx bug tracking system.

#### Support Requests

You can create a support request at *ooRexx Support Request* ([http://sourceforge.net/tracker/?group\\_id=119701&atid=684731](http://sourceforge.net/tracker/?group_id=119701&atid=684731)) page. Please be sure to log in to Sourceforge before creating the request so that it will record your e-mail address. This will allow SourceForge (and the ooRexx developers) a way to contact you when updates are made to your request. Otherwise you will need to manually check back on this page to track any updates to the request.

Also, please try to provide as much information in the support request as possible so that the developers can determine the problem as quickly as possible.

#### Bug Reports

You can create a bug report at *ooRexx Bug Report* ([http://sourceforge.net/tracker/?group\\_id=119701&atid=684730](http://sourceforge.net/tracker/?group_id=119701&atid=684730)) page. Please be sure to log in to Sourceforge before creating the report so that it will record your e-mail address. This will allow SourceForge (and the ooRexx developers) a way to contact you when updates are made to your report. Otherwise you will need to manually check back on this page to track any updates to the report.

Also, please try to provide as much information in the bug report as possible so that the developers can determine the problem as quickly as possible.

#### Patch Reports

If you create an enhancement patch for ooRexx please post the patch using the *ooRexx Patch Report* ([http://sourceforge.net/tracker/?group\\_id=119701&atid=684732](http://sourceforge.net/tracker/?group_id=119701&atid=684732)) page. Please be sure to log in to

Sourceforge before creating the report so that it will record your e-mail address. This will allow SourceForge (and the ooRexx developers) a way to contact you when updates are made to your report. Otherwise you will need to manually check back on this page to track any updates to the report.

Also, please try to provide as much information in the patch report as possible so that the developers can evaluate the enhancement as quickly as possible.

Please do not post bug patches here, instead you should open a bug report and attach the patch to it.

## **6.3. comp.lang.rexx Newsgroup**

The comp.lang.rexx (news:comp.lang.rexx) newsgroup is a good place to obtain help from many individuals within the Rexx community. You can obtain help on Open Object Rexx or on any number of other Rexx interpreters and tools.

# **A. Notices**

Any reference to a non-open source product, program, or service is not intended to state or imply that only non-open source product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any RexxLA intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-open source product, program, or service.

Any performance data contained herein was determined in a controlled environment. Therefore, the results obtained in other operating environments may vary significantly. Some measurements may have been made on development-level systems and there is no guarantee that these measurements will be the same on generally available systems. Furthermore, some measurement may have been estimated through extrapolation. Actual results may vary. Users of this document should verify the applicable data for their specific environment.

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All statements regarding RexxLA's future direction or intent are subject to change or withdrawal without notice, and represent goals and objectives only.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to the names and addresses used by an actual business enterprise is entirely coincidental.

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The source code for this document is maintained in DocBook SGML/XML format.



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2. in the case of each subsequent Contributor:
  - a. changes to the Program, and
  - b. additions to the Program;

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