# Open Object Rexx 4.0.0

## What's New?

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# Overview

- New Platforms
- New BIFs
- New Directives
- New Classes
- New Methods
- Other New Items
- Current Status

# New Platforms

- Support for both types of OS
  - 32-bit
  - 64-bit
- Built and tested on
  - Windows
  - Linux
  - AIX
  - Mac (soon)

# New Platforms (2)

- Extensive code rewrite required
  - needed to permit 64-bit compilation
  - allowed some internal redesign
  - enhances maintainability and extensibility
- Additional external APIs
  - object oriented vs. string only
  - all ooRexx supplied external function libraries upgraded
  - original APIs still available

# New Platforms (3)

- Documentation restructured
  - Rexx Reference
    - Windows-specific classes removed
  - New Windows Extensions manual
  - Windows OODialog Reference
    - be sure to read sect. 1.2 & 2.4
    - new and enhanced classes and objects
    - some items deprecated

# New Platforms (4)

- Rxapi
  - Now runs as a system wide daemon on *NIX (service on Windows)
  - Uses sockets vs shared memory for communication
- Windows Installation
  - uninstall only removes files installed by the ooRexx package
  - WSH support temporarily disabled
  - .REX files are now "drop handlers"
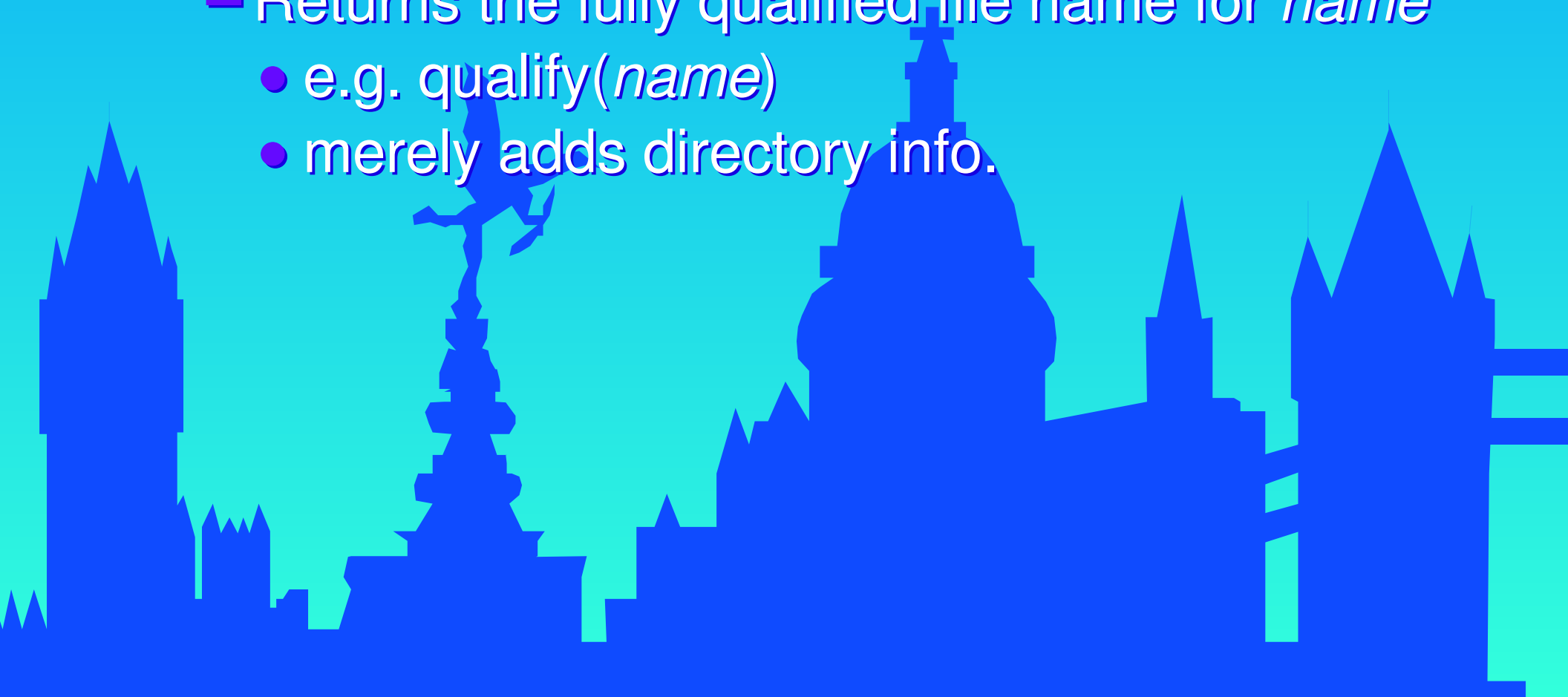
# New Platforms (5)

- REXX_PATH
  - added to Path
  - used for program searches
  - set by user

# New BIFs

- Qualify()
  - ANSI standard function
  - Returns the fully qualified file name for *name*
    - e.g. qualify(*name*)
    - merely adds directory info.

# New BIFs (enhancements)

- Filespec()
  - New options
    - Location - Drive + Path
    - Extension
- Time()
  - New option
    - Offset - returns the offset of the local time from UTC in microseconds
    - e.g. TIME("O")

# New BIFs (more enhancements)

- Lastpos() & Pos()
  - New parameter
    - length
    - e.g. LASTPOS(" ","abc def ghi",7,3) -> 0
- Translate()
  - New parameters
    - pos, length
    - e.g. TRANSLATE("abcdef", , , 2, 3) -> "aBCDef"

# New Directives

- IBM Object Rexx had 4
  - CLASS, METHOD, REQUIRES, ROUTINE
- ooRexx 3.2 added 1
  - ATTRIBUTE
- ooRexx 4.0.0 adds 2 more
  - CONSTANT
    - e.g. ::constant e 2.718
  - OPTIONS
    - e.g ::options digits 20 trace O

# New Classes

- **Fundamental Classes**
  - Package
    - an encapsulation for an ooRexx source file
    - new mechanism for external functions i.e. RxFuncADD
    - dynamic ::REQUIRES
  - Routine
    - call and callWith methods to run
    - dynamic ::ROUTINE
    - build executable code w/o INTERPRET

# New Classes (2)

- **Collection Classes**
  - IdentityTable
    - like Table but index object must be the same instance on searches
    - used mostly for situations where you need to keep track of actual object instances rather than relying on "equality", which may not be the same
    - interpreter uses this internally

# New Classes (3)

- Utility Classes
  - Orderable
    - MIXIN class that provides all of the comparison methods like <, =, etc.
  - Weak Reference
    - Use to maintain caches of objects without preventing them from being reclaimed by the garbage collector.

# New Classes (4)

- Utility Classes Related to New APIs
  - Buffer, Pointer, RexxContext
    - cannot be created from Rexx code
  - Buffer
    - a Rexx interpreter managed block of storage
  - Pointer
    - a wrapper around a native pointer value

# New Classes (5)

- Utility Classes Related to New APIs (2)
  - RexxContext
    - gives access to context information about the currently executing Rexx code
    - use .CONTEXT to access
      - .context~digits -> same as digits()
      - .context~variables -> a directory of the variables in the current execution context
      - .context~package

# New Methods

- Object Class
  - send
  - sendWith
  - startWith

# New Methods (2)

- DateTime Class
  - offset
  - toTimeZone
  - utcDate
  - utcIsoDate
  - Class methods
    - support timezone offset when creating new instances
- Method Class
  - package

# New Methods (3)

- MutableBuffer Class
  - many more of the methods of the String class
- OLEObject Class
  - addEventMethod, removeEventMethod
  - connectEvents, disconnectEvents
  - isConnectable
  - isConnected
  - removeEventHandler

# New Methods (4)

- RexxQueue Class
  - empty
  - makeArray
  - exists
  - open
- Stem Class
  - toDirectory
- String Class
  - replaceAt
    - "abcdef"~replaceAt(" ",3, 3) -> "ab f"

# Other New Items

- Utility Class
  - sockets.cls
    - needs ::REQUIRES to use
- Samples
  - sockets
  - ooDialog and Windows system
- ooRexxTry
  - GUI (ooDialog) version of RexxTry

# Other New Items (2)

- **Miscellaneous Enhancements**
  - EXTERNAL keyword on ::ATTRIBUTE, ::METHOD, ::ROUTINE
  - LIBRARY keyword on ::REQUIRES
  - String length > 999,999,999 on any 64-bit OS
  - Stream Class supports files > 4GB

# Other New Items (3)

- **Program Behavior Changes**
  - ::REQUIRES only loads once
  - Negative RCs returned correctly
  - ::ATTRIBUTE now correctly GUARDED
  - RxFuncAdd now verifies resolution
  - Returns from RxMath functions now consistent
  - Private Methods now also accessible from other instances of the same class and the class itself

# Current Status

- In Beta test
  - latest refresh built yesterday
- Release Candidate
  - 22 May 2009
- Target Release
  - 8 June 2009