Reality v10.0

Release Information

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Document control

Software Version	Document Status	Document Revision	Issue Date	Reason for Change
V10.0	Published	v0.1	July, 2003	Final draft

Table of Contents

Section 1: Introduction

Reality is a software environment that supports multiple databases on a single host and includes a range of powerful utilities for building, managing and accessing the databases.

The release information in this document applies to Reality V10.0 for UNIX and Windows. Reality V10.0 adds support for more platforms and environments and enhanced compatibility with similar database systems. You can also install an evaluation version with a limited number of users. Faults reported since Production Release of Reality V9.1 have been resolved. See New Features in Reality V10.0 (page 11) and Fault Resolutions (page 17) for more details.

Reality V10.0 is supplied on two CDs. Included on the first CD are:

- The Reality database software.
- User Documentation
- UNIX-Connect – networking software that provides communications between Reality databases and between Reality and host system environments.
- Reality Remote Tape – server software that allows a Reality host to use tape units on remote systems.
- PCSNI – client software that allows communication between a PC and a Reality database.
- JReal – client software that provides the Java programmer with the ability to run Remote Basic subroutines and to write custom servlets to access a Reality database via RealWeb.
- Reality Explorer – client software that plugs in to Windows Explorer to provide a graphical view of a Reality database.
- RealWeb – client software that provides a Web developer with DataBasic experience with access to data held in a Reality database.
- RealSQL-JDBC Driver – client software that provides a standard API for Java applications, applets and servlets using SQL to access data.
- RealSQL-ODBC Driver – client software that allows PC applications to access data using SQL.
- WinSQLM – client software that assists in creating SQL tables based on existing Reality dictionary definitions.
- RealEdit – a Reality editor that runs on Windows PCs.
- Reality and RealWeb demonstration software.

The second CD contains the Reality GUI Administration tool, including the:

- GUI Administration server.
- Client configuration utility.
- Client deployment service. This version of the software supersedes all previously released versions. NEC policy is to withdraw support for previous versions six months after a new release. The relevant date for this software can be obtained from your NEC representative or the NEC web site, www.nec-is.com/.

Section 2: Related documents

Reality is supplied with comprehensive on-line documentation for viewing in a web browser. Printed manuals are also available. Refer to the Document Directory in the online documentation for details.

Packaging

All of the software comprising this release is supplied on the installation CDs, with electronic versions of all documents (including this one). The first installation CD contains the following components.

Software	Version
PDS History Tool	V9.1
Reality	V10.0
User Documentation	V10.0
UNIX-Connect (Solaris, AIX, HP-UX)	V1.4.1
UNIX-Connect (Linux)	V1.4.2
Reality Remote Tape	V9.1
Reality Explorer (client)	V1.0.1
Reality Explorer Help (client)	V1.0
PCSNI (client)	V2.3.1
JReal (client)	V3.1
RealSQL-JDBC Driver (client)	V1.0.1
RealSQL-ODBC Driver (client)	V2.4
RealWeb HTML (client)	V3.0
RealWeb Servlets (client)	V3.1

WinSQLM (client)	V2.0
Reality Demonstration	V1.0
RealWeb Demonstration	V1.0
WinSNI Configuration Editor (client)	V1.0
RealEdit (client)	V1.1

The second installation CD contains the following components.

Software	Version
GUI Administration Tools	V1.0
Installation Guide for GUI Administration Tools	V1.0

Section 3: Prerequisites

3.1 Reality on UNIX

One of the following:

- SUN Sparc running Solaris 2.6, 7, 8, or 9.
  IBM P Series (RS 6000), running AIX 4.3.3 & 5L.
  Hewlett Packard PA-RISC running HP-UX 11i.
  PC with Intel Pentium processor or equivalent running Red Hat Linux 7.2
- 128Mb RAM minimum (512Mb recommended, 2-6Mb per Reality User). See also Memory on page 8.
- 500 Mb of available space to accommodate setup (actual hard disk used once installed will be between 220Mb and about 350Mb, depending on the system components installed).
- Korn shell.
- Perl – this is supplied with AIX, HP-UX and Linux (on HP-UX some configuration is necessary – contact NEC for details). On Solaris, Perl is installed when you install Reality.
- UNIX-Connect for networking (supplied on the Reality CD).
- NEC Customisation (a CD is available for SUN – for other operating systems, contact NEC).
- C compiler (on Solaris, if a C compiler is not available you can install the GNU C Compiler from the NEC Customisation CD).

3.1.1 UNIX-Connect

'rosi' UNIX user id with a home directory on a file system with at least 25 Mbytes free.

3.2 Reality on windows

- PC with Intel Pentium processor or equivalent, 200MHz or faster, running Windows NT 4.0 SP3+, 2000 SP1+, XP Home Edition or XP Professional Edition.

Note

Reality is not available for Windows 95, 98, 98 SE or ME, though many of the client components can be installed on these operating systems (refer to the Reality Client Components, Installation Guide for details).

- 64Mb RAM minimum (128Mb recommended, 2-6Mb per Reality User). See also Memory on page 8.
- 500Mb of available disk space to accommodate setup (actual hard disk used once installed will be between 150Mb and about 350Mb, depending on the system components installed).
  It is recommended that Reality is installed on an NTFS partition.
- The Reality database can be loaded on to a Primary Domain Controller, Backup Domain Controller, stand-alone member server or WorkStation.
- NEC can take no responsibility for the processor and memory requirements of other applications running on a Windows server. Ideally, Reality should be loaded on a dedicated server.

- Reality backup and restore is supported on 4mm, 8mm and DLT tape units.
- Using at least a dual processor system is highly recommended.

3.3 Memory

Reality memory usage is difficult to predict, but as a rough sizing guide use 128Mb for the system and then 2Mb to 6Mb per user, depending on type of user and application. Performance problems are generally caused by lack of memory. If the server is not dedicated to Reality then other application memory requirements must be added to this.

3.4 Foreign database support and SQL view

These features require a working ODBC installation, with appropriate ODBC driver(s), on the Reality system.

3.5 Client components

3.5.1 RealWeb

- A web server with support for Java servlets. (This can be on the same system as the Reality database or on another system.) On web servers that do not support servlets, plug-ins can be used to add servlet support.
- Java Run Time Environment (JRE) version 1.2 or above. If this is not available, it can be downloaded from java.sun.com/j2se/.
- If you are connecting to a Reality database on a UNIX host, the host will require UNIX-Connect.

3.5.2 RealSQL-JDBC driver

- Java Run Time Environment (JRE) version 1.2 or above. If this is not available, it can be downloaded from java.sun.com/j2se/.
- If you are connecting to a Reality database on a UNIX host, the host will require UNIX-Connect.

3.5.3 Reality explorer

- Microsoft Windows 98, ME, NT4.0, 2000 or XP (Home or Professional).
- NEC PCSNI software V2.2 Rev C or later.
- A Winsock compliant TCP/IP transport stack for TCP/IP connections.
- If you are connecting to a Reality database on a UNIX host, the host will require UNIX-Connect.

3.5.4 RealEdit

- Microsoft Windows 98, ME, NT4.0, 2000 or XP (Home or Professional).
- NEC PCSNI software V2.2 Rev C or later.

3.5.4 RealSQL-ODBC driver

- Microsoft Windows 95, 98, ME, NT4.0, 2000 or XP (Home or Professional).
- NEC PCSNI software V2.2 Rev C or later.
- Any ODBC Level 1 or 2 compliant application.
- A Winsock compliant TCP/IP transport stack for TCP/IP connections.
- If you are connecting to a Reality database on a UNIX host, the host will require UNIX-Connect.

The PC applications and transport stacks use large amounts of memory. It is therefore essential that PCs running this package are configured for the optimum use of memory, otherwise it is possible that GPFs and other memory type errors will occur.

3.5.5 WinSQLM

- Microsoft Windows 95, 98, ME, NT4.0, 2000 or XP (Home or Professional).
- NEC PCSNI software V2.2 Rev C or later.
- A Winsock compliant TCP/IP transport stack for TCP/IP connections.
- If you are connecting to a Reality database on a UNIX host, the host will require UNIX-Connect.

3.5.6 Remote tape server

Any UNIX or Windows system that supports Reality.

3.6 Online documentation

The on-line documentation can be installed on a web or file server, or on individual PCs running Windows 95, 98, ME, NT4.0, 2000 or XP. On Windows systems, they can also be viewed from the Reality CD.

To view the on-line documentation, you will require one of the following web browsers:

- Internet Explorer 5 or above, or Netscape 6 or above.

Internet Explorer is recommended.

3.7 GUI administration tools

The GUI Administration server will run on any platform that supports Reality V10.0, with the following additional requirements:

3.7.1 UNIX

- 256Mb RAM minimum (512Mb recommended, 2-6Mb per Reality User).
- 5MB free disk space.

3.7.2 Windows

- 500MHz or faster processor.
- Windows NT 4.0 SP6+, 2000 SP3+, XP Home Edition SP1+ or XP Professional Edition SP1+.
- 256Mb RAM minimum (512Mb recommended).
- 5MB free disk space.

3.7.3 Client configuration utility

Any Java-enabled platform.

3.7.4 Client deployment service

- Web server.
- 80Mb free disk space (Client Deployment) including space for JREs.

3.7.5 GUI administration client

Any platform with Java V1.4.1_02 or later installed and for which a web-start component is available. The following is recommended:

3.7.5.1 UNIX

- 128Mb RAM minimum (512Mb recommended, 2-6Mb per Reality User).
- 5MB free disk space.

3.7.5.2 Windows

- 500MHz or faster processor.
- Windows NT 4.0 SP6+, 2000 SP3+, XP Home Edition SP1+ or XP Professional Edition SP1+.
- 128Mb RAM minimum (256Mb recommended).
- 5MB free disk space.

Suitable versions of Java for Windows, Linux and Solaris are supplied on the CD.

Section 4: New features in Reality v10.0

4.1 Administration tool

GUI Administration is a tool providing a Graphical User Interface for easy routine administration of the system. Via a tree-structure the user is able to:

- Set up and maintain databases including:
  - Security profiles.
  - Users.
  - Backup & restore.
- Administer the GUI Administration system:
  - Add/remove system users.
  - Server administration.
  - Thread management.
  - Set up and administer user access to databases though the GUI Administration tool.

The tasks replace and supplement most of those available to the system administrator at TCL.

The interface runs on a client and allows different systems to be accessed via a tree structure to enable administrative tasks to be performed on Reality databases and their environments. It consists of a two-pane screen with the left-hand pane containing the tree structure representing the systems and their Reality databases, and the right-hand pane containing tabbed sub-panes whose contents reflect the selected tree node. Tooltips are displayed when hovering over most fields but if more information is needed then tab-specific help can be displayed below the panes.

4.2 Foreign database support

This feature provides Reality with access to data held on SQL-based foreign databases (currently Oracle or SQL Server). There are two ways of doing this, implemented as new Reality file types:

- Reality-specific storage format. In this format, the foreign database is set up to emulate Reality files, thus allowing Reality applications to store their data in the foreign database. The Reality account is set up in a local database, with some or all of the files held on a remote foreign database. The file definition item contains details of the file location.
- A new verb, FDB-SET, is used to change the way in which the CREATE-FILE verb operates. Following execution of FDB-SET, subsequently CREATE-FILE operations take place within the specified foreign database. Subsequent restore operations will restore files onto this foreign database. CREATE-FILE and the restore commands work in this way until FDB-CLEAR is executed. The verb FDB-SHOW lets you view the current foreign database setting.
- Data exchange storage format (SQL-VIEW). This provides Reality with a view of data held in the foreign database. The data remains in the foreign database format and therefore only limited access is possible from Reality.

Foreign database support requires a working ODBC installation, appropriate ODBC driver(s) and Data Source Definition(s) on the Reality system.

also install Reality and RealWeb demonstration programs.

4.3 MultiValue combability

Reality V10.0 has been further enhanced to improve compatibility with other MultiValue systems.

4.3.1 File triggers

This feature allows the user to specify a DataBasic subroutine that will run automatically before a file item is written or deleted. A file trigger can be set to run before or after an item is written and before or after an item is deleted.

- Triggers that run before file operations are mainly used to validate the attempted change to the database against user-defined constraints, or "business rules", and allow the change only if the constraint is satisfied.
- Triggers that run before file operations are mainly used to validate the attempted change to the database against user-defined constraints, or "business rules", and allow the change only if the constraint is satisfied.
- All types of triggers can be used to create relationships between files, to ensure that whenever one file is updated, another related file is also updated.

The components of the file triggers feature are as follows:

- A new DataBasic function, ACCESS, can be called from within a trigger subroutine. It returns information relating to the trigger, the file with which it is associated, and the item being written or deleted.
- • New debugger commands @*, WF, WF* and WS and additional options to the SET OPTION command make it possible to debug triggers. They also make it easier to debug DataBasic programs called from PERFORM statement and procs.
- New TCL verbs: CREATE-TRIGGER, DELETE-TRIGGER, LIST-TRIGGERS. The first of these allows you to associate a trigger subroutine with a Reality file and to specify whether it will run when an item is written or deleted and whether it will run before or after this file operation. The other two allow you to delete file trigger associations and to list the triggers associated with a file.

For more details, refer to File Triggers in Chapter 5 of the DataBasic Reference Manual.

4.3.2 TCP connections in DataBasic

This feature is sometimes referred to as TCP sockets. It allows DataBasic programs to connect to and accept connections from remote systems using raw TCP instead of DDA. This allows connections between Reality and many different types of system, for example.

- Oher Reality systems
- Web, ftp, telnet and time servers
- SMTP and POP3 email servers
- Networked applications (written in Java, for example)

- Other MultiValue systems that support raw TCP
- XML applications
- SOAP processes (using XML technology).

For details, refer to the descriptions of the DataBasic Connect and Accept statements in Chapter 3 of the DataBasic Reference Manual.

4.3.3 Pseudo floppy

The format used for Reality tape images is different to the pseudo-floppy (.vtf) format used by other MultiValue systems. Two new verbs, FDISCTOTAPE and TAPETOFDISC, allow you to transfer data between Reality and other MultiValue systems by converting Reality tape images into MultiValue pseudo-floppy images and vice versa.

4.3.4 Additional ACCOUNT-RESTORE options

Two additional ACCOUNT-RESTORE options are provided to simplify restoring accounts onto systems with a frame size smaller or larger than the original.

4.3.5 SYSTEM statement

This new DataBasic statement provides an alternative to using the ASSIGN statement for changing system elements whose values can be retrieved using the SYSTEM function. Refer to the DataBasic Reference Manual for details.

4.3.6 SP-ASSIGN

By default, the Reality SP-ASSIGN command will close any open print jobs. This behaviour can be changed by calling the SET-OPTION command with the SPASSIGN option, so that open print jobs will only be closed if SP-ASSIGN is called with no parameters.

4.4 Rapid recovery file system

This feature provides an additional resilience option. When a database is configured for Rapid Recovery, all changes to the database's structure are logged so that it is possible to return the database to a usable state within minutes of restarting after a system failure. When Rapid Recovery is successful, there is no need to restore the latest backup from tape. Transaction logs can then be rolled forward, and the database brought back into use. You should use Rapid Recovery alongside regular backups of the database file system, including verification of the FILE-SAVEs. A backup tape is then available if Rapid Recovery is unable to complete for example, in the event of a disk failure or a second system crash while recovery is in progress.

Note

This feature is only available on partition databases. It is therefore not available on some existing UNIX databases.

4.5 Large databases

The maximum database size has been increased from 256 gigabytes to 2 terabytes.

4.6 Compressed tape image

This feature allows Reality data to be saved to tape in compressed format, with a choice of compression levels. The required compression level can be specified in three ways:

- By setting a database configuration parameter.
- By setting an operating system environment variable. This overrides any database configuration parameter settings.
- By modifying the path to the tape image. This can be done in the database configuration file, or by using the T-DEVICE command at TCL. Specifying the level in this way overrides any default set with the previous two methods.

For details of how to set the compression level, refer to Tape Images in Chapter 9 of the Reality Reference Manual, Volume 2: Operation.

The default is no compression, for compatibility with older versions of Reality.

Note

A compressed tape image cannot be read by versions of Reality earlier than V9.1. Reality V9.1 and later can read any tape image, whatever the compression level.

4.7 Support for distributed transactions under MTS/COM+

If an application accessing Reality via the SQL/ODBC interface is running in a Microsoft MTS/COM+ environment, it may be using distributed transactions. These transactions are fully supported by Reality, using both ODBC and XA interfaces.

4.8 Networking

UNIX-Connect is now available on Linux. The following features are therefore also now available:

- Remote Tape
- UNIX-Connect
- Remote file access
- DDA terminal interface
- Remote client server
- PLID handling
- Remote Basic.
- RealWeb.
- SQL (ODBC and JDBC).
- Failsafe
- Heartbeat

Note

The UNIX-Connect Simple File Transfer (SFT) utility is not available on Linux.

4.9 RealEdit

RealEdit is a new Reality editor running under Windows. You can use RealEdit to modify any item in the database to which you have access. It can create and/or modify DataBasic programs, Procs, data file items, and file dictionary items. The only items you cannot edit with RealEdit are cataloged DataBasic programs and other binary format files. RealEdit is similar in operation to other Windows editors. However, it also allows you to perform Reality-specific operations such as compiling and cataloging DataBasic programs and viewing included code.

Section 5: Functionality/Features restrictions

5.1 All versions

- File triggers can currently only be associated with file data sections.
- If you intend using the Rapid Recovery feature, you must install fix V10.0.0.003, which can be found on the Reality CD in the directory /patches/UNIX/ or \patches\Windows\ as appropriate. Refer to the appropriate installation guide for how to install a fix.
- You should use Rapid Recovery alongside regular backups of the database file system, including verification of the FILE-SAVEs. A backup tape is then available if Rapid Recovery is unable to complete. For example, in the event of a disk failure or a second system crash while recovery is in progress.

5.2 AIX and HP-UX

Support for foreign database files and SQL-VIEW is not available on AIX and HP-UX.

5.3 Linux

The UNIX-Connect Simple File Transfer (SFT) utility is not available on Linux.

5.4 GUI administration tool

- The GUI Administration Server is not available for Solaris 2.6 and 7.
- The GUI Administration Tool client is only available for Linux and Windows.
- The GUI Administration Tool will not use any licences in this release. However, NEC reserves the right to change this in future versions of the Reality product.

Section 6: Fault resolutions

Reality V10.0 includes resolutions of the following customer-reported faults:

Fault number	Description
048779	NULL constraints are not being adhered to during SQL inserts.
048802	If shadow partition already mounted tlmenu tries to mount it and then complains it can't.
048822	Value element within RWA_EDIT_BOX and RW_EDIT_BOX doesn't get initialised if URL contains an equals (=) sign.
048830	Cannot issue read only element to RWA_EDIT_BOX.
048832	If CONTROL parameter is null, generates an error.
048842	SP-PRIORITY aborts when using job file option and you specify a non-existent file name.
048851	Cannot install Reality on some platforms running Linux.
048853	The error 'database needs checking' generates too many calls to CRC.
048857	SQL statement run via Java class causes Reality to die.
048858	Cannot install reality on a Pentium 1 machine.
048859	RW_BSPACE subroutine generates alternate text instead of blank image.
048860	Setting final parameter (CONTROL) of RW_INSERT_CONV_ITEM subroutine results in an error.
048864	SQLM not allowing multiple file names when creating new tables.

048865	dbtest -l & dbtest -L return incorrect results.
048866	When building Reality on upgrade, it automatically updates the raw log but then prompts to update the link.
048868	Unwanted space generated after HTML generated by RWA_TAG and RWS_TAG subroutines.
048869	Install_Key -i using the eval.ryk file on Linux gives the error 'input line too long and aborts.
048870	RWA_TAG_ATTR subroutine always generates an error.
048871	mkdbase allows you to create a dbase larger than 256Gb, which should be the limit.
048890	Spooler programs using CHECK.JOB.FILE need fixes to prevent abort when invalid job file used.
048891	Issues with install_fix.
048892	SP-RESUME doesn't work with private form queues.
048895	Extending a pseudo partition database on the Windows XP platform makes the database unavailable to remote sessions (for example, telnet and RemoteBasic).
048900	Installing Reality on a new Solaris box fails to find ar program.
048955	DIR-VIEW, SQL-VIEW and CLOG files can cause incorrect reporting of GFE's.
048973	VERIFY-SYSTEM always generates errors on some programs, even on newly built database.
048974	When producing a very large spool job, the job is killed and corrupts SPOOL.JOBS.

048977	MSG command within Reality fails to send messages when multiple userid's are specified.
049005	MSG2 or MSG3 * 'text' causes users logged into Reality to bomb. Reproducible on optimised Reality.
049019	TL-STATUS can abort at 1662,62.
049043	SP-JOBS: bug in option 18.
049064	RiscReadByKey is not protected enough; can cause core dumps when negative key lengths passed into it.
049065	Cannot make connection to Failsafe secondary after first connection terminated.
049066	Failsafe transmission quickly fails when pushed hard.
049178	STAT-FILE contains invalid sizing information for indexes on Windows.
049450	realdbck does not correctly recognise out of group D-pointers.
049454	SQLM cannot create new table definition.
049460	dbsave fails with 'COPY-LOGGING-MARK' not on file.
049528	MSG verb can corrupt memory when sending long messages.
084342	DataBasic compiler fails to handle unary minus correctly.
084356	Unformat command in screen editor removes spaces incorrectly when variables concatenated.
084362	When restarting transaction logging with tlmenu, get clean log already existing in event.log after failure.

084369	Create-index of multivalued (DEFINE-INDEX BY-EXP) data gave DIVZ abort: Error 10 in Frame 2368 at Line 123.
084384	UNIX-Connect does not link with X25 library libsx25.a.
084386	ISTAT (J option for indexes displays modulus of data section not the index.
084387	Index sizing algorithm incorrect and further explanation required.
084390	MAN TANDEM gives incorrect syntax.
084404	tlmenu converts secondary system name to lower case.
084409	tlmenu hangs trying to make an invalid database.
084415	BLIST (LM aborts if source contains INCLUDE.
084424	MAKE-SPECIAL filename LICENCE has incorrect dictionary macro.
084431	MAKE-SPECIAL LICENCE not created correctly.
084433	Messages "HBSignal unwanted Pids" in the daemon.log need to include port number.
084437	Unable to re-apply a fix using install_fix because the history file thinks it's already loaded.
084438	Inconsistent error level reporting in Reality daemon.log.
084447	DELETE-CATALOG aborts with error 8 in frame 1628.
084453	TANDEM fails when snooping a process running SYSTEM(14) in DataBasic.

084462	Install_Key cannot change a key that has a suffix in the /etc/features file.
084476	As for MultiValue, require to be able to execute Proc P command with empty buffers.
084536	If the debugger has been disabled and you use "DEBUG filename itemname" from TCL, a confusing error message is displayed (error 1 in frame 180 at line 424).

Section 7: Third-party products

The following third-party products may be included with Reality (depending on the operating system):

- Perl scripting environment (GNU Software Foundation)
- Gzip compression software (GNU Software Foundation)
- GNU C-complier (GNU Software Foundation)
- Gdb Debugger (GNU Software Foundation)
- Adobe Acrobat document reader (Adobe Systems Inc.)
- TomCat web server (Apache Software Foundation).

The following third-party products are used within Reality:

- GNUmalloc (GNU Software Foundation)
- Zlib compression library (GNU Software Foundation)


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NECSWS.com
1st Floor, Bizspace, iMex Centre,
575-599 Maxted Rd,
Hemel Hempstead HP2 7DX
+44 (0)1442 768445