

# Reality

V14.1

## Release Information

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# Introduction

Reality is a software environment that supports multiple MultiValue SQL-enabled 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 V14.1 for UNIX and Windows. Reality V14.1 adds new features and enhanced compatibility with similar database systems. Faults reported since Production Release of Reality V14.0 have been resolved. See *New Features in Reality V14.1* (page 12) and *Fault Resolutions* (page 22) for more details.

Reality V14.1 is supplied on CD or as a downloadable CD/ISO image file. These both contain:

- 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.
- RealWeb – software that allows DataBasic programmers to generate web pages containing data from 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.
- RealEdit – a Reality editor that runs on Windows PCs.
- Remote Basic ActiveX Control – a DLL that can be used in PC programs written in Visual Basic to run Remote Basic subroutines on a Reality database.
- Reality and RealWeb demonstration software.

A second CD/ISO image file contains the Web Services feature (including the Jetty web server). This can be downloaded from the Reality web site; select **Support** > **Downloads** > **System Components**.

*Note:* A third CD/ISO image file is available on request – this contains the Reality GUI Administration tool, which consists of:

- GUI Administration server.
- Client configuration utility.
- Client deployment service.

If you require this feature, contact your Northgate representative or submit an enquiry via the Reality website (select **Contact us** > **Enquiries**).

This version of the software supersedes all previously released versions. Northgate 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 Northgate representative or the Reality web site.

## Backwards Compatibility

Northgate strives to make each new version of Reality fully backwards compatible with previous versions. However, fault resolutions and new features can, in some cases, result in changes to menus and prompts displayed by host and TCL utilities; scripts which automate such utilities may therefore need to be reworked after upgrading or installing updates.

## Packaging

All of the software comprising this release is supplied on the installation CD and CD/ISO image files, with electronic versions of all documents (including this one).

The installation CD and first CD/ISO image file both contain the following components.

| Software | Version |
|---|---|
| PDS History Tool | V12.0 |
| Reality | V14.1 |
| User Documentation | V14.1 |
| UNIX-Connect | V1.5 |
| Reality Remote Tape | V12.0 |
| PCSNI (client) | V2.3.1 |
| JReal (client) | V3.2 |
| RealSQL-JDBC Driver (client) | V1.0.1 |
| RealSQL-ODBC Driver (Windows client) | V2.5.1 |
| RealSQL-ODBC Driver (UNIX client) | V2.5.1 |
| RealWeb HTML | V3.0 |
| RealWeb Servlets | V3.2 |
| Reality Demonstration | V12.0 |
| RealWeb Demonstration | V1.1 |
| WinSNI Configuration Editor (client) | V1.0 |

| Software | Version |
|---|---|
| RealEdit (client) | V1.1.1 |
| Remote Basic ActiveX Control | V1.0 |
| TCP Bridge | V1.0.1 |

The second CD/ISO image file contains the following components.

| Software | Version |
|---|---|
| Web Services | V1.0 |

The third CD/ISO image file (available on request) contains the following components.

| Software | Version |
|---|---|
| GUI Administration Tools | V2.0 |
| Installation Guide for GUI Administration Tools | V2.0 |

## Reality Website

Visit the Reality website at *www.northgate-is.com/reality* for:

- Product information (select **Products**).
- Downloads (select **Support** > **Downloads**).
- The latest documentation (select **Products** > **On-line Reality Documentation**).

  Reality is supplied with comprehensive on-line documentation for viewing in a web browser. Refer to the *Document Directory* in the on-line documentation for details. Note that the documentation is subject to change and it is essential that you have the latest version. You should regularly download this from the *Reality website*.

  We are constantly trying to improve the Reality documentation, so please send us your comments. Every topic in the documentation includes a link to a comment form.

- Enquires (select **Contact us** > **Enquiries**).

# Prerequisites

## Reality on UNIX

- One of the following:

  SUN SPARC running Solaris 8, 9 or 10.

  IBM pSeries (RS 6000), running AIX 5.2 or 5.3.

  PC with Intel Pentium processor or equivalent running one of the following versions of Linux: Red Hat version 7.2, 9, ES/AS versions 2.1 or 3 (32-bit), ES3 (64-bit) or ES4; CentOS 5.0.

- 128Mb RAM minimum (512Mb recommended), plus 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, plus space for databases).

- Korn shell.

- Perl – this is normally supplied with the operating system.

- UNIX-Connect for networking (supplied on the Reality CD).

- Northgate Customisation (a CD is available for SUN – for other operating systems, contact Northgate).

- C compiler (on Solaris, if a C compiler is not available you can install the GNU C Compiler from the Northgate Customisation CD).

### UNIX-Connect

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

## Reality on Windows

- PC with Intel Pentium processor or equivalent, 200MHz or faster, running Windows 7, Vista, XP (Home or Professional), Server 2008, Server 2003 or 2000 SP1+ (Professional or Server).

  *Note:* Reality is not available for Windows NT, 95, 98, 98 SE or ME.

- 64Mb RAM minimum (128Mb recommended), plus 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, plus space for databases).

  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.
- Northgate 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.

## 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.

## Foreign Database Support and SQL View

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

## External Components

### PCSNI

- Microsoft Windows 7, Vista, XP (Home or Professional), Server 2003, Server 2008 or 2000.
- A LAN card.
- TCP/IP networking.
- A way of resolving host name and IP addresses (for example, a hosts file or a domain name service).

### RealEdit

- Microsoft Windows 7, Vista, XP (Home or Professional), Server 2003, Server 2008 or 2000.
- Northgate PCSNI software V2.2 Rev C or later.

### JReal

Java Run Time Environment (JRE) version 1.2 or above. If this is not available, it can be downloaded from Sun's Java web site (*http://java.sun.com/j2se/*).

### RealSQL-ODBC Driver

- Microsoft Windows 7, Vista, XP (Home or Professional) , Server 2003, Server 2008 or 2000.
- Northgate 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.

**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.

**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.

**Remote Tape Server**

Any UNIX or Windows system that supports Reality.

**Reality Web Services**

- A web server with support for Java servlets (Jetty is supplied). 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.

  *Note:* Reality Web Services have been tested on Jetty 5.1.4 and Tomcat 5.0.

- Java Runtime Environment (JRE) or Java Development Kit (JDK), version 1.4.1_02 or later. For Jetty, you can use either; for Tomcat you must use a JDK.

**Remote Basic ActiveX Control**

- Microsoft Windows 7, Vista, Server 2003, XP (Home or Professional) or 2000.
- *PCSNI* software V2.2 Rev C or later.

## On-line Documentation

The on-line documentation can be installed on a web or file server, or on individual PCs running Windows or Linux. It 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 6.0 or later (PC only).
  –or–
- Mozilla Firefox 2.0 or later (PC or UNIX).

*Note:* You can also view the on-line documentation on some earlier versions of the above browsers and on some other types of browser. A message will warn you that your browser is not fully supported.

## GUI Administration Tools

### GUI Administration Server

The GUI Administration server will run on the majority of platforms that support Reality V11.0 and later, subject to the following additional requirements:

#### UNIX and Windows

- Reality V11.0 or later.
- Java V1.4.1_02 or later. (Versions of the JRE suitable for Windows, Linux and Solaris are supplied on the CD.)
- 256Mb RAM minimum (512Mb recommended), plus 2-6Mb per Reality User.
- 5MB free disk space, plus space for JRE (around 40-50Mb for Java V1.4.1_02).
- TCP/IP network.

#### Windows

- 500MHz or faster processor.
- Windows XP + SP1, Windows 2000 + SP3.

  *Note:* The Reality GUI Administration Server is not currently certified on Windows 7, Vista, XP SP2, Server 2008 or Server 2003 SP1, though this is subject to review. For the latest information, refer to the *Reality website.*

### Client Deployment Service

The Client Deployment Service will run on the majority of platforms that support Reality V11.0 and later, subject to the following additional requirements:

#### UNIX and Windows

- Web server (it is strongly recommended that you use the web server supplied with Reality).
- 128 MB Memory (256Mb recommended).
- Java V1.4.1_02 or later (versions of the JRE suitable for Windows, Linux and Solaris are supplied on the CD).
- 80MB free disk space (includes around 40-50 MB for JRE).
- TCP/IP network.

#### Windows

- 500MHz or faster processor.

- Windows XP + SP1, Windows 2000 + SP3.

  *Note:* The Reality Client Deployment Service is not currently certified on Windows XP SP2, Server 2003 SP1 or Vista, though this is subject to review. For the latest information, refer to the *Reality website.*

**Client Configuration Utility**

Java V1.4.1_02 or later (versions of the JRE suitable for Windows, Linux and Solaris are supplied on the CD).

**GUI Administration Client**

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

**Linux**

- 128Mb RAM minimum (512Mb recommended).
- 5MB free disk space, plus space for JRE (around 40-50Mb for Java V1.4.1_02)
- Netscape 6 or 7, or Mozilla 1.4 or 1.5 (to display on-line documentation).

**Windows**

- 500MHz or faster processor.
- Windows 2000 SP3+, XP Home Edition SP1+ or XP Professional Edition SP1+.

  *Note:* The Reality GUI Administration Client is not currently certified on Windows XP SP2, Server 2003 SP1 or Vista, though this is subject to review. For the latest information, refer to the Reality *Reality website*.

- 128Mb RAM minimum (256Mb recommended).
- 5MB Free disk space, plus space for JRE (around 40-50Mb for Java V1.4.1_02)
- Internet Explorer 6.0 or later, or Mozilla Firefox 2.0 or later (to display on-line documentation).

Suitable versions of Java are supplied on the CD.

# New Features in Reality V14.1

The features below that are marked as optional are chargeable and must be separately enabled with a software key. Contact your Northgate representative to obtain the keys you need.

## MultiValue Compatibility

Reality V14.1 has been further enhanced to improve compatibility with other MultiValue systems. In addition, the following features simplify migration to Reality from other MultiValue systems.

- MultiValue compatible databases. This feature allows you to select all the options necessary to emulate a different MultiValue system with a single command.
- Case-insensitivity – options are available to make Reality operate in either the default, case-sensitive mode or a D3 compatible, case-insensitive way. Refer to the sections Data Case-insensitivity, Keyword Case-insensitivity and Item-id Case-insensitivity.

  You should not normally need to use these, as the correct options are set when you specify the MultiValue emulation for a database.
- DataBasic Environment Control. This allows the run-time behaviour of a DataBasic program or subroutine to be determined by the compiler used and the MultiValue compatibility mode.
- Logon Programs. Reality logon programs have been enhanced in various ways.
- TCL Macros. These allow the user to perform simple batch tasks.
- Other MultiValue Features.

### MultiValue Compatible Databases

The mkdbase host command now has a interactive menu interface which allows you to choose a MultiValue emulation (Reality, mvEnterprise, mvBase or $D^3$) for a new database. This automatically enables data, keyword and item-id case-insensitivity if appropriate, sets the frame size to an appropriate value, and changes the default user operating environment to be compatible with the selected emulation (see Predefined Environments).

The VendorEmulation database configuration parameter specifies the MultiValue emulation. If set in the master database configuration file, it sets the default value for this **mkdbase** menu option. The SYSTEM(102) function (DataBasic and Proc) returns the currently selected emulation.

### Case-insensitivity

Data Case-insensitivity

This can only be used if enabled both for the database with the DataCaseControl database configuration parameter and for a particular user with the DATA.CC environment option. Once enabled, it is possible to select or deselect it with either

the CASE TCL command or the DataBasic CASING statement. If data case-insensitivity is enabled at both levels, it is initially selected for that user.

If data case-insensitivity is enabled, the following features become case-insensitive:

- DataBasic relational expressions.
- The following DataBasic functions and statements: CHANGE, COMPARE, CONVERT, COUNT, DCOUNT, FIELD, FMT, GROUP, ICONV, INDEX, LOCATE, OCONV, TRIM functions; CONVERT, FIND, IF, INPUT, INPUT@, UNTIL, WHILE statements.
- SORT function. The *sortOrder* parameter now accepts additional options to control data case-insensitivity.
- The Proc IF and IF (Multivalued) commands use case insensitive string comparisons.
- In English selection clauses, case is ignored when comparing attribute values.

  *Notes:*

  - Because index definitions are based on English, this also applies to indexes.
  - If attribute 8 contains any pre-processor codes, case is also ignored when comparing item-ids.

The SYSTEM(101) function (DataBasic and Proc) returns the current state of data case-insensitivity. In D3 mode (set with the $OPTIONS statement) the SYSTEM(28) function returns the current case-insensitivity setting for DataBasic.

Keyword Case-insensitivity

This can only be used if enabled both for the database with the KeyCaseControl database configuration parameter and for a particular user with the KEY.CC environment option. If enabled, the following features become case-insensitive as regards keywords:

- The contents of account and file definition items (local, synonym and remote).

  *Note:* Although the user can use mixed case when editing a D-pointer, attribute 1 is converted to upper case when saved.

- The contents of command and command synonym definition items.

  *Notes:*

  - This does not currently apply to Proc commands, which must be entered in upper case.
  - The case-sensitivity of TCL commands called from Procs and TCL macros depends on the item-id case sensitivity of the account's master dictionary.

- String keyword parameters in the following DataBasic functions and statements: COMPARE function (*alignment* parameter), LOCATE statement (*sequence* parameter), SORT function (*sortOrder* parameter), TRIM function (*type*

parameter), UNTIL statement (*limit-expr* parameter), WHILE statement (*limit-expr* parameter).

- In the ICOUNT and ISELECT TCL commands, the case of alphabetic comparison operators is ignored.

The following features are always available and do not have to be enabled:

- A new TCL command, COMPILE, provides a case-insensitive alternative to the BASIC command. This is functionally identical to BASIC, except that the case of keywords, variables and labels is ignored; for example, the variables FRED, fred and FrEd are treated as a single variable.

- DataBasic debugger. The / command now allows you to enter variable names in any case.

Item-id Case-insensitivity

This is enabled by selecting the appropriate option from the mkdbase menu when creating a database. To set the default to case-insensitive, either set the IIDCaseControl database configuration parameter in the master configuration file or set the REALCASEINSENSITIVE host environment variable.

*Note:* You can change an existing database to be item-id case-insensitive when you rebuild it by using mkdbase with the -r and **-c** options.

- If item-id case-insensitivity is enabled on a database, you can create files, accounts and directory views with case-sensitive item-ids. The INSENS.CREATE.FILE environment option specifies the default. This may be overridden with two new options: U (case sensitive, as on Unix) and W (case insensitive, as on Windows).

- Files, directory views and accounts are marked as case-insensitive by the addition of a D-pointer option (I) as the second character in attribute 1. The I option can only be set when the file or account is created, or with the CONVERT-FILE command; it cannot be changed by editing the D-pointer.

- Directory views. On UNIX hosts a directory view is made case-insensitive by making all item-ids lower case in the Reality file. As a result, all host files created as Reality items will have lower case names and only host files with lower case names are visible.

  *Note:* Since Windows has a case insensitive file system, directory views are unchanged on this type of host.

The following item-id case-insensitivity features are also available:

- SYSTEM(100) function (DataBasic and Proc). This returns whether the database supports case-insensitive item-ids.

- The USER, ISTAT, HASH-TEST and LISTFILES TCL commands display whether the file contains case-insensitive item-ids.

- A new TCL command, CONVERT-FILE allows you to convert a file or an account MD from item-id case-sensitive to case-insensitive and vice versa. It is available in all user accounts, but can convert an account MD only if run from the SYSMAN or SYSPROG account.

For information about how item-id case-insensitivity affects Reality, refer to Case Sensitivity.

Indexes

- When an index is created, the current settings for data and item-id case-sensitivity are saved with the index to ensure correct operation.

- Changing the item-id case-sensitivity of a file with the CONVERT-FILE command will invalidate any indexes. The indexes must be deleted and recreated to restore correct operation. The VERIFY-INDEX TCL command reports if the item-id case-sensitivity for an index does not match that of its file.

**DataBasic Environment Control**

This allows the run-time behaviour of a DataBasic program or subroutine to be determined by a combination of two factors:

- The compiler version. There will be two ways of setting this:
    - By using the required compiler – the compiler version is embedded in the compiled code.
    - By specifying compiler version at the beginning of the source code with the $OPTIONS statement. This will only be valid if using the V14.1 compiler or later and will produce code that behaves as if it was compiled using an earlier version of the compiler. It will only be possible to run code compiled in this way on V14.1 or later.
- The MultiValue compatibility mode (if any) set at the beginning of the source code with the $OPTIONS statement.

Each combination of compiler version and MultiValue compatibility mode sets a unique combination of compatibility switches that control individual DataBasic features. These allow Reality V14.1 to work in a similar way to both earlier versions and other MultiValue systems, so that existing applications can run with the minimum of modification.

**Logon Programs**

- These could previously only be Procs, but it is now possible for any TCL command to be used; for example, a cataloged DataBasic program, synonym command, macro, sentence or menu. This applies to all types of Logon program: user, account and TCL inhibit.

  This feature is enabled on a user-by-user basis by setting the LOGON.PROGS environment option.

- User and Account logon programs. In previous versions of Reality, if both the user and the specified or default account had a logon program, only the user program was executed. If this feature is enabled and both the user and the account have

logon program, when the user logon program completes, the account logon program is run.

This feature is enabled on a user-by-user basis by setting the ACCOUNT.LOGON environment option.

- Global Logon Program. This allows the definition of a global logon program that runs when any user logs on. The program must be defined as an item called GLOBAL-LOGON in the MD of the GLOBAL.MD account.

**TCL Macros**

TCL macros provide an alternative to Proc for simple batch tasks. Four types of macro are available:

| | |
|---|---|
| N-type macro | These allow the execution of a sequence of TCL commands. Any input required from the user must be appended as values to the command concerned. When run, TCL options supplied on the command line are applied to the first command in the macro. |
| M-type macro | This is similar to an N-type macro, but presents each command to the user for editing before execution. |
| S-type sentence | This is similar to an N-type macro, but supports different item formats for compatibility with other MultiValue systems. |
| TCL menu | This type of macro presents a list of options to the user and runs the TCL command associated with the selected option. |

The following macro-only commands are provided:

DISPLAY statement
: This displays a message to the user. The message can include literal text, the output of one or more TCL commands and various control sequences. An option allows the user to specify which MultiValue video codes are used (to simplify migration).

PROMPT statement
: This displays a message to the user in the same way as the DISPLAY statement, but then waits for the user to enter C (continue) or Q (quit). If Q is entered, none of the subsequent commands are executed.

COMMENT statement
: This is similar to the DISPLAY statement, but uses a different syntax.

REM statement
: This allows remarks to be inserted into macros. All text which follows, up to the end of the line, is ignored.

Macros are items in the MD of an account. The user can create them with any of the Reality editors, or by using the .C TCL Stacker command to save commands from the stack as an S-type sentence. If a different type of macro is required, the user must use one of the editors to modify the saved item.

Macros of any type can be run from the TCL command line. In addition, an S-type macro can be loaded onto the TCL stack using the .X TCL Stacker command and the commands it contains executed from there. This is intended primarily for executing macros that were saved from the stack; any secondary input is ignored.

**Other MultiValue Features**

- Support for the 'DATA' prefix to a filename.

- TCLREAD statement (DataBasic). This is functionally the same as the SENTENCE function, but returns its result in a variable supplied by the programmer.

- CHANGE and SWAP functions (DataBasic). These now accept two additional parameters that allow you to specify the number of occurrences to replace and the occurrence with which to start.

- EREPLACE function (DataBasic). This is identical in operation to the **CHANGE** function.

- DISPLAY statement (DataBasic). This is identical in operation to the CRT statement, but is only available in AP, D3, MVBASE, PICK and R83 modes (set with the $OPTIONS statement).

- File error handling (DataBasic). In some MultiValue compatibility modes the THEN or ELSE clause for certain file handling statements is optional.

- The TRIM function (DataBasic) has a new type option (M). This is similar to the "R" type, in that it replaces repeated occurrences of the specified character with a single character, but it does not remove leading and trailing occurrences.

  In D3 compatibility mode (set with the $OPTIONS statement), the "R" type functions in the same way as "M".

- SYSTEM(98) function (DataBasic). This returns a number representing the current video emulation; that is, the MultiValue vendor used to map the DataBasic @(-*n*) function within the current program module (determined by the MultiValue mode set with $OPTIONS).

  It is also possible to set the video emulation for the current program module by using the ASSIGN or SYSTEM(98) statement.

  When called from Proc, SYSTEM(98) always returns 0 (Reality).

- Predefined operating environments have been added for Reality V14.1, PICK, R83 and AP.

- SYSTEM(94) function (DataBasic and Proc). This returns a unique identifier based on the date and time, with a suffix to make this unique if necessary. In D3 compatibility mode this feature is available as SYSTEM(19).

- @ function (DataBasic and Proc). Additional extended cursor addressing codes are now available in D3 and MVBASE compatibility modes (set with the $OPTIONS statement).

- SYSTEM function (DataBasic and Proc). D3 and MVBASE compatibility modes (set with the $OPTIONS statement) are now available.

- Logical expressions (DataBasic). In D3, PICK/R83 and AP compatibility modes (set with the $OPTIONS statement), a complex logical expression are "short circuited" if a sub-expression evaluates to false. Subsequent sub-expressions are not evaluated. For details, see the TRUE.BOOL compatibility switch matrix setting.

## Other Enhancements

### Supported Platforms

Reality V14.1 adds support for:

- Windows 7 and Server 2008.

- CentOS 5.0 (Linux) on PCs with Intel Pentium or equivalent processors.

The WinSQLM client component has been discontinued.

### Partial D-pointers

If a File or Account definition item has less than 10 attributes, default values are used for the alignment and item-id column width (attributes 9 and 10).

### mkdbase

The mkdbase host command now accepts a switch (–h) that allows the hash type to be set.

### TIPH Licences

A TIPH licence similar to the current Despooler licence is now available.

### Global TCL Commands

When a TCL command is run, the verb was previously searched for in the MD of the current account and then, if not found, in the file specified as the user's "Alternate Verbs File" (set in the user's security profile). This feature adds a third location – the MD of the GLOBAL.MD account.

An additional feature of this allows the user to bypass the local MD and the alternate file, and force selection of the global command. This is done by prefixing the command name with a tilde (~). By using this, the user could write a macro with the same name as a global command, but call the global version from with that macro.

A new environment option (INHIBIT~) allows the user to disable the latter feature, so that local commands with names beginning with tildes can still be run.

### DataBasic

Conditional Compilation

$IFDEF and $IFNDEF constructs allow the programmer to mark sections of code for inclusion or exclusion depending on whether a symbol has been defined (using the EQUATE statement or a new $DEFINE compiler directive). The $UNDEFINE statement allows you to undefine a symbol that was previously defined with **$DEFINE**.

*Note:* When you select a MultiValue compatibility mode with the $OPTIONS statement, an appropriate conditional compilation symbol is automatically defined.

The **$TRUE**, **$T**, **$FALSE** and **$F** conditional compilation symbols provided by mvEnterprise are also supported.

EQUATE Statement

The EQUATE statement will now accept the LITERALLY keyword, used with a value enclosed in quotes. This allows the substituted value to contain spaces and multiple statements (separated by semicolons).

ACCESS Function

A new element (34) has been added to the ACCESS function. When this is used in a dictionary subroutine, ACCESS returns a string containing the next conversion code, if any. This makes it possible for DataBasic to emulate certain historic types of user exit.

File Information Functions

Two new DataBasic functions return information about a specified Reality file:

- The FILEPATH function returns the path of the file referenced by a specified file variable.
- The FILEINFO function returns other information about the file referenced by a specified file variable.

Named Common Sections

Two new TCL commands are available:

NC.LIST This displays a list of the named common areas that have been defined and their current states.

NC.RESET This resets one or more named common areas.

In addition, when you log to a different account, any open files referenced by variables in named common sections are closed.

Default Compiler

On Reality V14.1 the default DataBasic compiler is a new version that supports all the new features described in this topic. Note that code generated by this compiler cannot be run on earlier versions of Reality.

See Also

DataBasic Environment Control.
Other MultiValue Features.
Indexes.

**Proc Error Messages**

If a Proc is called from another Proc with the P command, the result might not be as expected; in particular, on completion of the called Proc, it will not return to the calling Proc. On V14.1 this problem can be harder to identify and solve, in that a Proc

could call a TCL Macro which calls a Proc, etc., so error messages have been added to warn the user of this situation. On V14.1 emulations, these are enabled by default; they can be enabled or disabled as required with the TRAP.EMBEDDED.PROC environment option.

**Global POINTER-FILE**

A new account will no longer contain a Q-pointer to the global POINTER-FILE, so it is no longer necessary to delete this before creating a local pointer file. Note however, that to access the global pointer file, you must include the account name (SYSFILES). For example:

```
LIST /SYSFILES/POINTER-FILE
```

**Indexes**

- The ICOUNT and ISELECT TCL commands will now accept symbols as comparison operators, as alternatives to the alphabetic ones previously available.

  In addition, when using the **AND** operator, the higher key value can now precede the lower key value.

- The SELECT-INDEX TCL command will now accept multiple key values separated by colons, corresponding to the **BY** clauses in the index definition.

- For indexes that were created from dictionary definitions that include output conversions, the ICOUNT, ISELECT and SELECT-INDEX TCL commands apply those output conversions as input conversions to the literal data specified as appropriate. This behaviour can be inhibited with the EXTERNAL.KEY environment option.

- POSITION statement (DataBasic). New keywords allow you to position the read pointer at the start of an index and at the position following an entry that matches a key value.

- LIMIT.INDEX statement (DataBasic). It specifies the end of a range of positions within an index and must be used in conjunction with the POSITION statement.

- For indexes that were created from dictionary definitions that include output conversions, the POSITION and LIMIT.INDEX statements apply those output conversions to the literal data specified as appropriate. This behaviour can be changed with the EXTERNAL.KEY compatibility switch.

# Restrictions

This section lists the restrictions that were current when Reality V14.1 was released. For the latest information, refer to the Reality pages on the Northgate *Reality website*.

## All Versions

- File triggers can currently only be associated with file data sections.
- Shadow database cannot currently use partition databases constructed from standard host files on different file systems (see Types of Database).

## AIX

The foreign database files feature is not currently available on AIX.

## Linux

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

## On-line Documentation

On Windows 7, Vista, Windows Server 2003 SP1 or XP SP2, if the documentation is installed on the local file system and you are using Internet Explorer, you will receive a number of security warnings regarding active content. These can be avoided by installing the documentation on a web server (recommended), or by selecting the **Allow active content to run in files on My Computer** option (you can find this in **Tools** | **Internet Options...**, on the **Advanced** tab under **Security**).

## GUI Administration Tool

- 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, Northgate reserves the right to change this in future versions of the Reality product.
- The GUI Administration feature is not currently certified on Windows XP SP2, Server 2003 SP1 or Vista, though this is subject to review. For the latest information, refer to the *Reality website*.

## Fault Resolutions

Reality V14.1 includes resolutions of the following faults:

| Fault Number | Description |
|---|---|
| 085003 | The result of a Boolean expression may not be one or zero, but will be true or false. |
| 085245 | The remote tape service is being stopped by windows service control manager due to invalid current state 0 error. |
| 085249 | Deleted account names are still visible in RealEdit. |
| 085261 | MD conversion does not handle an embedded decimal point. |
| 085262 | The T command in PQ proc causes screen positioning to be ignored. |
| 085266 | SLEEP "00:00" not sleeping. |
| 085267 | **realdbc** cannot cope with filenames that contain null characters. |
| 085275 | T-STATUS (V displays character 0xFF at the end of each line. |
| 085281 | Cannot install UNIX-Connect from the Reality V14.0 CD without a /usr/realman link or directory. |
| 085282 | Performing a program which has opened a file with a named common variable. If a second program opens the file, the lock will remain set even if released. |
| 085291 | Reality save does not benefit from compression if save is encrypted. |
| 085297 | Reality save aborts on restored MultiValue account. |
| 085316 | DCOUNT of null string value returns 1. |
| 085330 | CREATE-ACCOUNT takes option as account name. |
| 085348 | Errors - `rirchilddeath: wait for child failed`. |
| 085368 | Restore of MV case-insensitive file causes Reality to crash later. |
| 085372 | QSELECT does not go down to subvalue level; stops at value level. |
| 090417 | ENGLISH-TUTORIAL has items missing from its files. |
| 090433 | `IF REMOVE_TYPES = 1 THEN` gives bad statement error. |
| 090452 | LOADENT as used by mkdbase cannot process extended reality T-DUMP format tapes. |
| 090464 | Can't use IN_STR as variable, while CRT_STR is OK. |
| 090475 | Concatenate of SENTENCE(*n*) gives `rwsblkxtnd: invalid workspace size requested`. |
| 090476 | Sort of a specified attribute or value returns a null. |
| 090481 | For MV, allow include statement where comma is between file-specifier and item-name |
| 090501 | Memory corruption if error message missing. |
| 090503 | SET-ENVIRONMENT should display current environment. |
| 090509 | TCL-inhibit program causes continuous loop. |

| Fault Number | Description |
|---|---|
| 090512 | Case-sensitive files are restored from a MultiValue save as insensitive. |
| 090520 | The stacker .Q command doesn't work. |
| 090527 | Writing to a DIRVIEW with an item id containing characters that are illegal in the host operating system is not handled correctly. |
| 090531 | Cataloging DataBasic in MV mode can corrupt D-pointer. |
| 090541 | Keyboard echo can become disabled. |
| 090553 | SORT never completes. |
| 090560 | Windows netadmin utility does not provide a way to clear a field. |
| 090564 | cdinstall option 3 fails to install. |
| 090577 | M-A-R fails with signal (11) in frame 2102. |
| 090578 | DataBasic shows wrong line number in error for single END in IF statement. |
| 090586 | Files with names containing slashes are not accessible using direct Q-pointers. |

# Third Party Products

The following third party products are used within Reality:

- GNUmalloc (GNU Software Foundation);
- zlib compression library (GNU Software Foundation).
- DES Encryption library (Eric Young – eay@cryptsoft.com).

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

- 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).
- Jetty web server (Mort Bay Consulting).