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# DOCUMENTATION CONVENTIONS

This manual uses the following conventions:

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<thead>
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<th>Convention</th>
<th>Usage</th>
</tr>
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<tbody>
<tr>
<td><strong>BOLD</strong></td>
<td>In syntax, bold indicates commands, function names, and options. In text, bold indicates keys to press, function names, menu selections, and MS-DOS commands.</td>
</tr>
<tr>
<td><strong>UPPERCASE</strong></td>
<td>In syntax, uppercase indicates JBASE commands, keywords, and options; BASIC statements and functions; and SQL statements and keywords. In text, uppercase also indicates JBASE identifiers such as filenames, account names, schema names, and Windows NT filenames and pathnames.</td>
</tr>
<tr>
<td><strong>UPPERCASE ITALIC</strong></td>
<td>In syntax, italic indicates information that you supply. In text, italic also indicates UNIX commands and options, filenames, and pathnames.</td>
</tr>
<tr>
<td>Courier</td>
<td>Courier indicates examples of source code and system output.</td>
</tr>
<tr>
<td><strong>Courier Bold</strong></td>
<td>In examples, Courier Bold indicates characters that the user types or keys (for example, &lt;Return&gt;).</td>
</tr>
<tr>
<td>[]</td>
<td>Brackets enclose optional items. Do not type the brackets unless indicated.</td>
</tr>
<tr>
<td>{}</td>
<td>Braces enclose nonoptional items from which you must select at least one. Do not type the braces.</td>
</tr>
<tr>
<td>ItemA</td>
<td>ItemB</td>
</tr>
<tr>
<td>. . .</td>
<td>Three periods indicate that more of the same type of item can optionally follow.</td>
</tr>
<tr>
<td>⇒</td>
<td>A right arrow between menu options indicates you should choose each option in sequence. For example, &quot;Choose File ⇒ Exit&quot; means you should choose File from the menu bar, and then choose Exit from the File pull-down menu.</td>
</tr>
</tbody>
</table>

Syntax definitions and examples are indented for ease in reading.

All punctuation marks included in the syntax—for example, commas, parentheses, or quotation marks—are required unless otherwise indicated.

Syntax lines that do not fit on one line in this manual are continued on subsequent lines. The continuation lines are indented. When entering syntax, type the entire syntax entry, including the continuation lines, on the same input line.
PREPARE FOR THE INSTALLATION

64 Bit operating system

jBASE 5.2 is a 64-bit release and must be installed onto a 64-bit Operating System.

Root Access

This document assumes you have superuser (su) or root access to the computer. Root or superuser commands will be represented with the pound sign / hash (#) character.

Disk Space

Ensure the volume in which you are installing jBASE 5.2 has sufficient free disk space, approximately 500MB is required, plus additional space for any temporary files.

```
    df -h  # will show the current disk usage within each Linux volume
```

jBASE is generally installed on whichever volume contains the '/opt' directory structure.
Packages needed for jBASE

Install libcrypto.so.6

    # yum install openssl098e.x86_64 0:0.9.8e-17.el6

Install gcc compiler

    # yum install gcc

Install ksh interpreter

    # yum install ksh

Install ncurses-devel package

    # yum install ncurses-devel

Install ftp package

    # yum install ftp

License Key

In order to complete the installation you will need access to the jBASE license key that will have been supplied to you.

Setup Group and Users

You must first create a jBASE group and add/create a list of jBASE administrators and users. The system administrator should perform all additions.
Create a Group

Login as ‘root’ and create the ‘jbase’ group. All jBASE users will need to be members of this group.

# groupadd jbase

Create the jBASE Administrator User

Any existing user can be modified to run jBASE. However it is recommended that a dedicated jBASE administrator user be created which will be used in the installation of jBASE and the configuration of any other jBASE users.

Login as root and create the “jbaseadm” user. This command will create the jBASE administrator:

# useradd -m -d /home/jbaseadm -s /bin/ksh –g jbase jbaseadm

Set the password for the new user:

# passwd jbaseadm

Create a jBASE User (Optional)

After creating a jBASE Administrator user it is recommended that a non admin user is also created for normal development tasks.

# useradd -m -d /home/jbaseuser -s /bin/ksh –g jbase jbaseuser

Set the password for the new user:

# passwd jbaseuser
Setup the directory structure for your jBASE Installation

Log in as the system administrator and create a directory structure for the jBASE installation:

# mkdir /opt/jbase5
# mkdir /opt/jbase5/5.2.xx
# mkdir /opt/jbase5/tars

Change the 'owner' and 'group' settings for the directories that have just been created so that they are owned by the jBASE administrator user and may be accessed by members of the 'jbase' group.

# chown –R jbaseadm:jbase /opt/jbase5

Add a symbolic link

Create a 'symlink' to the directories just created. By doing this, when a new version of jBASE is released it can be installed in it's own directory structure which you can point to by changing the symlink

# ln -s /opt/jbase5/5.2.xx /opt/jbase5/5.2
INSTALLATION

Download the jBASE software

Download the jBASE 5.2 software using the credentials that will have been supplied to you. Place the software in the `/opt/jbase5/tars` directory.

Extract the contents of the jBASE `tar` file

Change directory to the `/opt/jbase5/5.2` directory and extract the contents of the compressed jBASE `tar` file.

```bash
# umask 0
# cd /opt/jbase5/5.2
# tar -xzvf ../tars/64bit_jbase52xx.tar.gz
```

Extract the contents of the jBASE `tar` file

Change directory to the `/opt/jbase5/5.2` directory and extract the contents of the compressed jBASE `tar` file.

```bash
# umask 0
# cd /opt/jbase5/5.2
# tar -xzvf ../tars/64bit_jbase52xx.tar.gz
```
License Key Installation

License keys for jBASE 5.2 need to be added to the 'system.properties' file, located in the '/opt/jbase5/5.2/config' folder.

You will have been sent a 'Server' license key and may also have been sent a 'Multisession' and/or 'Websession' license key(s). Each key must be added as a separate entry in the 'system.properties' file according to the installation instructions in the documents you received with the license keys. When the keys have been added, the last 3 lines of your 'system.properties' file will look something like this:

```
jruntime.license = qP2XhdjqbdbiqzvfDBgPisP3ITiDfhyT
jruntime.azeroth = 5FLY3q6e4P6I1qdZLr2q4wadhmM06VQvzoOGDVX0KZSs=
jruntime.multisession = 5FLY3q6e4P6vTff9AETIQYwyjTnxDVK6sS1uFVfPeFQ=
```

For further information on jBASE licensing see the jBASE Knowledgebase:

[jBASE 5 Licensing](#)
Configure the jBASE Environment Variables

The following settings will allow you to create a basic jBASE environment. For further information on the available environment variables in jBASE see the jBASE Knowledgebase: Environment Variables

The jBASE release will contain the following script:

$JBCRELEASEDIR/jbase_env.sh

# Script to set environment variables for jBASE 5.2

JBCRELEASEDIR=/opt/jbase5/5.2
export JBCRELEASEDIR
JBCGLOBALDIR=$JBCRELEASEDIR
export JBCGLOBALDIR
JBCJREDIR=$JBCRELEASEDIR/java/jre
export JBCJREDIR
JBCJRELIB=$JBCRELEASEDIR/java/JBCJRELIB:$JBCRELEASEDIR/java/jvmlib
export JBCJRELIB
PATH=$JBCRELEASEDIR/bin:$JBCRELEASEDIR/config:$PATH
export PATH
LD_LIBRARY_PATH=$JBCRELEASEDIR/lib:$JBCJRELIB:$LD_LIBRARY_PATH
export LD_LIBRARY_PATH
PATH=$JBCRELEASEDIR/bin:$JBCJREDIR/bin:$PATH
export PATH

Source the jbase_env.sh in the `.profile` of your jBASE Users

Source `jbase_env.sh` to the login profile of each jBASE user by adding the following line at the end of their `.profile` or `.bash_profile` script.

```
./opt/jbase5/5.2/jbase_env.sh
```

Note: If you want to run it as a user, simply do that same thing at the shell. The line starts with dot (.) and space ( ).

```
# ./opt/jbase5/5.2/jbase_env.sh
```
UPGRADING FROM A PREVIOUS VERSION

Setup the directory structure for your jBASE Release

As the jBASE administrator, create a directory structure for this jBASE release

# cd /opt/jbase5
# mkdir /opt/jbase5/5.2.xx

Change the ‘owner’ and ‘group’ settings for the directories that have just been created

# chown –R jbaseadm:jbase /opt/jbase5/5.2.xx

Add a symbolic link

Create a ‘symlink’ to the directories just created. By doing this, when a new version of jBASE is released it can be installed in it’s own directory structure which you can point to by changing the symlink

# rm –f /opt/jbase5/5.2
# ln -s /opt/jbase5/5.2.xx /opt/jbase5/5.2

Download the jBASE software

Login as the jBASE administrator user Download the jBASE 5.2 software using the credentials that will have been supplied to you. Place the software in the ‘/opt/jbase5/tars’ directory.

Extract the contents of the jBASE ‘tar’ file

Log in the as the ‘jbaseadm’ user and navigate to the ‘/opt/jbase5/5.2’directory. Extract the contents of the compressed jBASE ‘tar’ file.

# umask 0
# cd /opt/jbase5/5.2
# tar -xzvf ../*.64bit_jbase52xx_rhas5.tar.gz

Note that the name of the tar file will be different for each release. The ‘xx’ indicates the minor release number.
Copy Licensing and Configuration details from Previous Version

Log in as the ‘jbaseadm’ user and navigate to the '/opt/jbase5/5.2/config' directory. Copy the 'system.properties' file from the previous version. This file will contain the current license key.

```
# cd /opt/jbase5/5.2/config
# cp /opt/jbase5/5.2.xx/config/system.properties . ← xx is previous version
```

Copy any other configuration files from the previous releases that were created or have been modified. Such files may include ‘Config_EMULATE’, ’jspform_*’, ’jspxl_*’, ’jnet_*’, ’jvfs_*’. See section 3.5.

Amend the existing Symbolic Link to point to the new version

Log in as the system administrator and change the symbolic link to point to the latest version.

```
# rm -f /opt/jbase5/5.2
# ln -s /opt/jbase5/5.2.xx /opt/jbase5/5.2
```

Optionally copy other config items to the new release

You will need to copy the following other config items if they have been altered from those supplied with the jBASE 5 release.

- **Config_EMULATE** – Contains the JBCEMULATE settings
- **Config_TERM** – Contains translations from PICK TERM to linux TERM items
- **jediLoggerAdminLog, jediLoggerConfig, jediLoggerTransLock** – Contains TJ log parameters
- **jnet_access, jnet_config, jnet_env, jnet_map, j vfs_config** – jRFS configuration files
- **jspjobs_config, jspform_deflt, jspxl_deflt** – jBASE spooler config files
- **jshlogin** – if jsh shell is used as the login shell
- **jLibDefinition** – Define shared object items
GETTING STARTED WITH JBASE

At this point jBASE has been installed and licensed. The following section describes how jBASE may be configured to behave similarly to other 'MV' flavours which will be familiar to 'MV' users. This will be done using the 'jbaseuser' user that was created previously.

Create a SYSTEM file

Log in as 'jbaseuser' and create a SYSTEM file in the $HOME directory

$ CREATE-FILE DICT SYSTEM 11

$ chmod 666 SYSTEMJD

Add the JEDIFILENAME_SYSTEM environment variable to the '.profile' file to point to the new SYSTEM file you have created.

Add an Account and create an MD file in the Account

$ mkdir $HOME/PLAY

$ cd $HOME/PLAY

$ CREATE-FILE DICT MD 29

$ chmod 666 MDJD
Add the Account to the SYSTEM file

This will allow you to ‘LOGTO’ the account.

# cd $HOME
# JED SYSTEM PLAY

001 D
002 /home/jbaseUSER/PLAY
003 - 19 are null
020 ESYSTEM_START
021 jbase
022 /home/jbaseuser/PLAY
023 - 27 are null
028 /home/jbaseuser/PLAY/MDJD
029 - 36 are null
037 ESYSTEM_END

Test that the Account has been correctly defined.

$ LOGTO PLAY
jsh PLAY ~ -->UpdateMD

Any user should now be able to LOGTO the PLAY account and try out jBASE

$. /opt/jbase5/5.2/jbase_env.sh
$ export JEDIFILNAME_SYSTEM=/home/jbaseuser/SYSTEMJD

$ LOGTO PLAY
jsh PLAY ~ -->CREATE-FILE BP TYPE=UD
jsh PLAY ~ -->ED BP HELLO.WORLD

001 CRT ‘HELLO WORLD’
jsh PLAY ~ --> BASIC BP HELLO.WORLD

jsh PLAY ~ --> CATALOG BP HELLO.WORLD

jsh PLAY ~ --> HELLO.WORLD

HELLO WORLD

Or simply login as the jbaseuser and LOGTO PLAY (You could add the LOGTO PLAY to the .profile)

login: jbaseuser

password:

$ LOGTO PLAY

jsh PLAY ~ -->

For further information on the SYSTEM file and defining Accounts see the jBASE Knowledgebase.

jBASE Accounts
FURTHER READING

Further reading relating to jBASE and it’s component technologies is available from the jBASE Knowledgebase.

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>jBASE Agent</td>
<td>Accepts and Processes incoming client requests</td>
</tr>
<tr>
<td>jEDI Development Kit</td>
<td>Provides access to RDBMS from jBASE applications</td>
</tr>
<tr>
<td>jBASE jDBC Driver</td>
<td>Provides JDBC access to jBASE data files</td>
</tr>
<tr>
<td>jBASE ODBC Driver</td>
<td>Provides ODBC access to jBASE data files</td>
</tr>
<tr>
<td>Transaction Journaling</td>
<td>Logs jBASE database updates</td>
</tr>
<tr>
<td>jBASE Dataguard</td>
<td>Database Resilience within jBASE</td>
</tr>
<tr>
<td>jRCS</td>
<td>jBASE Remote Connectivity Service</td>
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<td>jBASE Spooler</td>
<td>The jBASE Spooler</td>
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<tr>
<td>jSHELL</td>
<td>The jBASE Shell</td>
</tr>
<tr>
<td>mv.NET</td>
<td>Visual Studio development for MultiValue Data</td>
</tr>
</tbody>
</table>

For support related queries, please email devsup@jbase.com.
GLOSSARY OF TERMS

jBASE

An open database product that brings the strengths of MultiValue technology into the mainstream computing market; providing a multidimensional database, a development environment including a development language, and a middleware component allowing other mainstream and standards-based products to communicate with the jBASE products.

jBASE Distributed Locking Service (jDLS)

jDLS is responsible for resolving all record locking conflicts for jBASE processes. It runs in the background on your system and is commonly referred to as the lock daemon.

If jDLS is not running, jBASE will use the normal operating system locks. This is acceptable for small user populations, but the operating system locking mechanism has limits on the number of locks available, and on performance.

jBASIC:

The language built in to jBASE, jBASE BASIC (jBC) is a dialect of BASIC that combines the power of stored procedure languages with a fully-fledged development language.

jCL

The jBASE Command Language is an implementation of the PROC processor found in other multivalue offerings. The jCL processor stores a complex series of commands that can be executed later by a single word or command, but does not require any compilation.

jed

The jBASE Editor is a fully featured screen editor, which can be used for creating, modifying, or deleting records.

jEDI
The jBASE External Device Interface (jEDI). The jEDI enables applications to achieve seamless integration with foreign databases without changes to the jBASE MultiValue BASIC application code and logic.

**jlp**

The jBASE spooler program. This is the jBASE equivalent of the unix lp command.

**jPLUS**

jPLUS files provide large file support on 64 bit UNIX and Windows platforms, such that Hash files can extend beyond the normal 2GB operating system limit.

**jQL**

The jBASE Query Language (jQL) is a powerful and easy to use facility which allows you to retrieve data from the database in a structured manner and to present the data in a flexible and easily understood format.

**jRFS**

The jBASE Remote File Service allows remote access to files on other systems running jBASE.

**jServControl**

A jBASE command line utility allowing the install, configuration and removal of jBASE services on Windows.

**jsh.exe**

A windows executable that initiates a jSHELL session.

**jshmd**

jBASE Windows service that initiates the required areas of shared memory for systems which utilize operating system locking.
jSHELL

The jBASE shell. It can be invoked as your login shell by using the normal system administration software supplied with the platform. Either via .bat files (Windows) or .profiles (Unix).

Environment Variables

jBASE uses a number of environment variables to modify jBASE behaviour

HOME

The ‘HOME’ environment variable. This stores the pathname of user’s home directory.

Multisession

A Multisession license allows for up to ten concurrent sessions from a single IP address or system name to the database.

system.properties

The ‘system.properties’ file resides in the %JBCRELEASEDIR%\config directory and stores jBASE license keys and compiler instructions.

Websession

A Websession license allows up to a ten sessions originating from a Web Server or Terminal Server (single IP address). For example with three of these licenses the Web Server would have 30 concurrent sessions available.