

# The Oracle Magician

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## From the Editor

Welcome to the inaugural issue of The Oracle Magician! This quarterly newsletter will focus on various “tricks of the trade” in the Oracle world—from DBAs, architects, developers, designers, and report writers.

Why this newsletter?

There are many magazines and journals that simply rehash the information found in the Oracle User’s Guides. This newsletter is different! *The Oracle Magician* is concerned with innovative and practical ideas based on actual hands-on experience.

Ideas, suggestion, and especially—*tricks*—are most welcome. Please email the editor with your suggestions.

Another regular feature of the Oracle Magician will be book reviews of favorite (or not so favorite) Oracle books.

We are also looking for writers to submit articles that explore interesting ideas of use to DBAs or designers.

Please send all ideas to [Chris@OracleMagician.com](mailto:Chris@OracleMagician.com)

## Oracle 9i “Silent” Installation

By Igor Polishchuk

The goal of this article is to explain the silent installation option only. This is not a substitution for the Installation guide; please refer to the Oracle 9i Installation Guide for all the pre-installation and post-installation tasks. All pre-installation and post-installation tasks should be fulfilled as usual.

One drawback of silent installation is that it initially requires much more time to prepare response files, but when set of response files created for



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typical installations, silent installation requires less time, then GUI installation.

### Step 1. Copy response files.

Copy files from directory response on CD-ROM to any convenient directory.

### Step 2. Edit response files.

For server installation edit *custom.rsp*. It contains all the necessary instructions for editing. In the future, when you have prepared a set of response files for typical installations, use one of these files instead.

### Step 3. Start *runInstaller*.

Use format:

```
/<Cdrom_dir>/runInstaller -silent -responseFile <filename>
```

Select the **-silent** parameter to perform a completely non-interactive

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# Using Raw Device Data Files ( Part 1)

By Brian Keating

**Oracle data files on UNIX systems come in two basic flavors -- "cooked files" and "raw devices."**

## Editor's Note:

This is the first in a two-part series on the use of raw device data files. This first installment contains an introduction to raw devices. In the next issue, Brian Keating will explain how to perform recovery using raw device data files.

## Introduction to Raw Devices

Oracle data files on UNIX systems come in two basic flavors - "cooked files" and "raw devices." Cooked files are standard UNIX files that reside in UNIX file systems. Raw devices are one of two things; they are either entire physical disk partitions, or they are entire UNIX "logical volumes." A logical volume is an arbitrary area of disk space, on one or more disks. In either case, though, the disk partition or logical volume does *not* have a UNIX file system built on top of it - which means that Oracle interacts with the data in that area of disk space directly, without going through a UNIX file system.

This article describes raw device data files that are built on UNIX logical volumes. Raw devices that are built on physical disk partitions are not discussed, for two reasons. First of all, it is far more common today to define areas of disk space with logical volumes, rather than with physical disk partitions. Also, the procedures needed to recover data files that are built on physical disk partitions are very specific to particular flavors of UNIX.

## UNIX device files

Every UNIX logical volume has two UNIX "device files" associated with it - a "character special" device file and a "block special" device file. These device files are basically pointers to the area of



disk space that the logical volume occupies. Special device files can be created in any directory, but by default they live in the /dev directory. The name of a block special device file is the same as the name of the logical volume that it points to. The name of a character special device file is also the same as its logical volume name, except that it has the letter "r" as a prefix.

For example, if you have a logical volume called "hd4", then there will be two special device files associated with it - a block special device file called hd4, and a character special device file called rhd4. For example, on one of our test systems, the following output gets displayed from a long listing in the /dev directory:

```
$ ls -l *hd4
brw-rw---- 1 root system
10, 6 Oct 16 1998 hd4
crw-rw---- 1 root system
10, 6 Oct 09 1998 rhd4
```

The first field in that output shows you the permissions on those files, but it also shows you that the files are block and character special device files, respectively. You can tell this from the very first character in the first field - a "b" means that the file is block special, and the "c"

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installation or configuration. **Note:** In non-interactive mode, the *DISPLAY* environment variable must still be set.

#### Step 4. Finish installation.

When *runInstaller* is complete, you will see:

**The installation of Oracle9i Database was successful. Please check /u01/app/oracle/oraInventory/logs/silent Install.log for more details.**

Review file *silentInstall.log*; there will be a reminder to *root.sh*, and the note: ***The installation of Oracle9i Database was successful.***

#### Step 5. Run *root.sh* script.

Run script that is found in:

`/u01/app/oracle/product/9.0.1/root.sh`

#### Step 6: Post-Installation Tasks.

If you did not configure the response files to start the Network Configuration and DB Configuration Assistant, manually create the database and configure network.

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#### Silent Install “Response” files

## First Time Silent Installation

During an interactive installation, the *oraInstRoot.sh* script creates the *oraInst.loc* file. If you have not previously installed Oracle products on a server, you must manually create the `/var/opt/oracle/oraInst.loc` file before running the Installer in non-interactive mode.

This file specifies the *oraInventory* directory where the Installer creates the inventory of Oracle products installed on the system.

Example of entries in *oraInst.loc* file:

```
inventory_loc=/u01/app/oracle/oraInventory
inst_group=oinstall
```

<b>enterprise.rsp</b>	Enterprise Edition Installation
<b>standard.rsp</b>	Standard Edition Installation
<b>custom.rsp</b>	Custom Edition Installation
<b>oms.rsp</b>	Oracle Management Server installation
<b>oid.rsp</b>	Oracle Internet Directory installation
<b>infrastructure.rsp</b>	Management Infrastructure
<b>clientadmin.rsp</b>	Administrator installation of Oracle9i Client
<b>clientruntime.rsp</b>	Runtime installation of Oracle9i Client
<b>clientcustom.rsp</b>	Custom installation of Oracle9i Client
<b>dbca.rsp</b>	Oracle Database Configuration Assistant
<b>netca.rsp</b>	Oracle Net Configuration Assistant
<b>emca.rsp</b>	Oracle Enterprise Manager Configuration

## Advantages of “Silent” Install

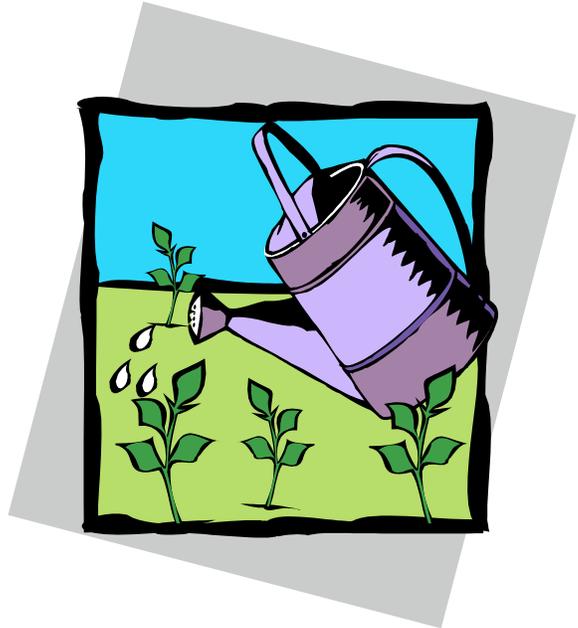
Silent install allows a repeatable configuration that can be installed on any server. Manual choosing of products can lead to unequal installation or install products that are never used.

Silent install can also be used for the “assistant” programs: Network Configuration Assistant, Database Configuration Assistant, Enterprise Manager Configuration Assistant.

Silent install also allows remote installations through slow channels, when Xwindows applications are not fast enough.

## Different varieties of UNIX

Many commands listed in the “Raw Device” article are specific to AIX; however, the procedures apply to any UNIX flavor that supports a “logical volume manager” (LVM). For example, the command to change the name of a logical volume varies depending on the UNIX flavor. In AIX, the “chlv” command is used, while in HP-UX, the command is “lvchange.” So, while the specific commands can only be used on AIX, there are corresponding commands in most other flavors of UNIX. Consult your system administrator for the appropriate commands on other UNIX flavors. Also, almost all of the major flavors of UNIX come with an LVM; the only ones that don’t (that I know about) are Solaris and Linux. A third party LVM is available for Solaris, though – the Veritas Volume Manager.



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means that it is character special. You can verify this by using the “file” command, which tells you what type of file any given file is:

```
$ file hd4
hd4: block special (10/6)
$ file rhd4
rhd4: character special (10/6)
```

The fifth and sixth fields in the ls -l output are the “major number” and “minor number” of those device files, respectively. (In this case, the major and minor numbers are 10 and 6, respectively.) Explaining what major and minor device numbers are is beyond the scope of this article, but basically they refer to the type of device driver that is needed to access the device in question (in this case, the device in question is a logical volume).

### Oracle and Raw Devices

In order for an Oracle database to use a raw device for a data file, the character special device file of the logical volume in question must be specified as the name of the data file. So, if you want to use a logical volume called “testdb\_admin” for a data file, you must specify the character special device file “rtestdb\_admin” as the name of the data file. To make a physical backup of that data file, you must use the dd command to copy that data file to a file system on disk or to a tape. When you copy raw device data files, though, a prob-

lem arises - the copy of the data file that gets created is itself a normal UNIX file - it is not a character special device file. This is important in the recovery scenarios, which we discuss in Part 2.

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## In Part 2 – “Recovering Oracle Raw Device Data Files”

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