

NAME

rc.listener – General purpose maintenance utilities for Oracle listener, System V (Solaris, AIX, Linux) start/stop scripts, and VCS Sqlnet agents.

SYNOPSIS**rc.listener**

lsnr=*LNSR*
 action=*start*
 flag=*Y|N|NO_CHANGE|NC* (Default Y)
 verbose=*Y|N* (Default N)

rc.listener

lsnr=*LNSR*
 action=*stop*
 flag=*Y|N|NO_CHANGE|NC* (Default N)
 method=*immediate|abort* (Default immediate)
 verbose=*Y|N* (Default N)

rc.listener

lsnr=*LNSR:psonly|nomonitor*
 action=*status|stat*
 flag=*Y|N* (Default No flag check)
 verbose=*Y|N* (Default N)

rc.listener

lsnr=*LNSR*
 action=*restart*
 verbose=*Y|N* (Default N)

rc.listener

lsnr=*LNSR*
 action=*reload*
 verbose=*Y|N* (Default N)

rc.listener

lsnr=*LNSR*
 action=*flag*
 flag=*Y|N*
 verbose=*Y|N* (Default N)

S|Knumberlistener *start|stop|restart|reload|status|stat*

S|Knumberlistener-*LNSR* *start|stop|restart|reload|status|stat*

S|Knumberoracle-*LNSR* *start|stop|restart|reload|status|stat* (Deprecated)

online *LNSR[:psonly|nomonitor]*

online . . . *LNSR[:psonly|nomonitor]*

offline *LNSR[:psonly|nomonitor]*

offline . . . *LNSR[:psonly|nomonitor]*

clean *LNSR[:psonly|nomonitor]*

clean .0|1|2|3|4 . . . *LNSR[:psonly|nomonitor]*

monitor *LNSR[:psonly|nomonitor]*

monitor . . . *LNSR[:psonly|nomonitor]*

* **help**=y

* **version**=y

DESCRIPTION

rc.listener is a single shell program to start, stop, test Sqlnet listener; check and update the flag; and send notifications, if configured, for abnormal listener conditions, and when the N flag becomes too old.

rc.listener is 3-in-1, multifunctional program serving different purposes when installed with different names. When named *rc.listener*, its canonical name, it is a general purpose program; when linked as **S|Knumberlistener** or **S|Knumberlistener-LNSR**, it is used as System V start / stop script; when linked as **online**, **offline**, **clean**, and **monitor**, it is VCS (Veritas Cluster Server) Sqlnet agent.

Before we describe each of 3 functionalities, we need to define the oratab entries for listener.

ORATAB

Oracle does not define oratab entries for listener. We use two ways to handle this: (1) each Sid has its own listener named LISTENER_Sid; or (2) use a commented out entry in the format:

```
##_<listener_name>:oracle_home:Y
```

Use one or the other, do not mix them. For example, if one non-standard listener name needs to be listed as above, list all listeners even for standard listener names. Otherwise **rc.listener** do not know how many listeners you have, and what their names are.

Please see this section in **rc.oracle help=y** for relocation of oratab for systems which put oratab on /etc.

FLAG

Please see this section in **rc.oracle help=y** for discussion of oracle database flag. We confer the same semantics on listener flag.

The VCS agent uses the flag to determine whether to monitor the listener or not. If you shutdown the listener for maintenance, you should change the flag to N so that the agent won't start it up. Change the flag to Y if you want to the agent to monitor it.

rc.listener combines the two steps – listener start/stop and flag change – for you.

GENERAL PURPOSE UTILITY

When used as a general purpose utility for most common use, you specify two parameters, the listener you are operate on, and the action which is either start, stop, restart, reload, status, flag (show or change flag). The *verbose=y* option allows you the **lsnrctl** output.

For the START action, the default behavior is to startup the listener, and change the flag to Y. However you can specify the flag to be either Y or N, or NO_CHANGE.

For the STOP action, the default behavior is to shutdown the listener and change the flag to N. Again you can specify the flag to be either Y or N, or NO_CHANGE.

The method option lets you specify how you want to shutdown. The default is IMMEDIATE, which uses **lsnrctl stop** command to shutdown the listener. The ABORT method kills the listener process.

The FLAG action shows you the current flag, or change it to what you asked for.

The STATUS or STAT action checks the health of the listener. If the FLAG option is Y, it checks the flag for the listener in oratab and only test the listener when the flag is Y.

The **rc.listener** utility can used manually, or embedded in other programs.

SYSTEM V START/STOP SCRIPT

When the program is named as **S|Knumberlistener-LNSR**, or **S|Knumberlistener**, it can be used as system V start/stop scripts. The former is to start/stop the particular listener regardless the flag. The latter is to start/stop ALL listeners whoes flag is Y.

For example:

To start / stop listeners with Y flag on Solaris:

```
cp rc.listener /etc/init.d/rc.listener
ln /etc/init.d/rc.listener /etc/rc2.d/S90listener
ln /etc/init.d/rc.listener /etc/rc0.d/K10listener
```

The location and naming conventions are slightly different on other Sys V derived systems:

On AIX 5.2:

```
cp rc.listener /etc/rc.d/init.d/rc.listener
ln /etc/rc.d/init.d/rc.listener /etc/rc.d/rc2.d/S90listener
ln /etc/rc.d/init.d/rc.listener /etc/rc.d/rc2.d/K10listener
```

On SuSE Linux (2.4.7):

```
cp rc.listener /etc/init.d/rc.listener
ln /etc/init.d/rc.listener /etc/init.d/rc3.d/S90listener
ln /etc/init.d/rc.listener /etc/init.d/rc3.d/K90listener
```

rc.listener supports `chkconfig`. On redhat based systems, you can use `chkconfig` to add and delete the service:

```
# chkconfig --add rc.listener
# chkconfig --list rc.listener
rc.listener      0:off  1:off  2:on   3:on   4:on   5:on   6:off
# chkconfig --del rc.listener
```

VCS Sqlnet AGENT

When the program is named **online**, **offline**, **clean**, and **monitor**, it can be used as VCS (Veritas Cluster Server) Sqlnet agent.

This is done by installing the Solaris package MERotas provided in `rc.listener` distribution. The following procedure is for *illustration* purpose only.

```
#!/ For illustration purpose only, please use package for your platform.  *#
mkdir -p /opt/VRTSvcs/bin/Sqlnet
cp rc.listener /opt/VRTSvcs/bin/Sqlnet/rc.listener
cd /opt/VRTSvcs/bin/Sqlnet
for i in online offline clean monitor; do
    ln rc.listener $i
done
ln -s ../ScriptAgent SqlnetAgent # VCS provided
```

Please also see `add_sqlnet_to_vcs.ksh` in the distribution on how to add the service to VCS. `Lsnr` is the sole parameter that needs to register in VCS. Basically,

```
online  LSNR = rc.listener lsnr=<LSNR> action=start flag=Y
offline LSNR = rc.listener lsnr=<LSNR> action=stop method=immediate flag=Y
clean   LSNR = rc.listener lsnr=<LSNR> action=stop method=abort flag=Y
monitor LSNR = rc.listener lsnr=<LSNR> action=stat flag=Y
```

We can run the commands on the left side manually before testing VCS.

PSONLY AND NOMONITOR

The *extended* `Lsnr` can be used in the format `LSNR:psonly|nomonitor`. The qualifiers *psonly* and *nomonitor*, which are case `inSENsiTIVE`, are only applicable how the `Lsnr` is tested.

psonly, as the name suggests, is used to test only the existence of listener process. The presence of the process does not mean the listener is working properly.

nomonitor, as the name suggests, is used not to test the the listener, but considers it to be up.

These two qualifiers are used mainly for VCS, to prevent it from automatically restart the listener. It does

not affect the failover.

A monitor program should be in place when used these two qualifiers.

CONFIGURABLE PARAMETERS AND VCS NOTIFICATION

ZERO configuration is required for normal use of *rc.listener*.

However, following the philosophy of “simple things should be easy but complicated things should be possible”, the configuration file in:

```
$ORACLE_BASE/.ora_${LSNR}_env.ksh or
$ORACLE_BASE/.ora_${SID}_env.ksh
```

can be used for these parameters:

```
MAILLIST
PAGELIST
FTIME
```

The format of specification is “key = value”. The left side should *contains* the key, and optionally white spaces and other characters; the right side should contain the value and possibly white spaces. The key is case INsenSIitive.

So the following format all valid, and equivalent:

```
# MailList = dba_list@foo.com
MAILlist=dba_list@foo.com
```

MAILLIST and *PAGELIST* are used for VCS agent notification. The agent sends page to *PAGELIST* when (a) monitor failed; (b) monitor produced an unexpected status; (c) listener start and stop. Unfortunately, monitor can not send page when the it times out. But hopefully, the notification will be sent by clean and online. The agent sends mail to *MAILLIST* when the N flag for the database becomes too old (older than *FTIME* if set, or 1 day).

The *FTIME* is a number in minutes, which provides a way for you to tell *rc.listener* that you the flag is changed to N for x minutes. *rc.listener* will send email to *MAILLIST* if this limit is exceeded, once per day between 08:00 and 08:15 hours.

RETURN CODE AND ERROR MESSAGES

The VCS monitor spits the following informational messages which can be used for log monitor. The “110” and “100” are return code required by VCS. They are *not* part of the message.

```
110 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was up.
110 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] needed attention. Details in <
110 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was not tested with recent N f
110 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was not tested with old N flag
110 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] had unexpected status. Details
100 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was down. Details in <logdir>.
```

The return codes for system V start / stop script are not used. The brief message informs the SA what is going on:

```
YYYY-MM-DD HH24:MI:SS Running S|K<number>listener with start|stop option.
This may take a few minutes.
When in doubt, please check <logdir>.
Working on <Lsnr> ...
YYYY-MM-DD HH24:MI:SS <Lsnr> was up|down.
```

The return codes for start/stop should not be trusted. Either check the specific messages produced by *lsnrctl*, or follow up start/stop with *stat*. The return code and informational messages for **rc.listener** status option are:

```

0 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was up.
1 YYYY-MM-DD HH24:MI:SS <LSNR>[:psonly|nomonitor] was down.
!0 YYYY-MM-DD HH24:MI:SS <other messages.>

```

For example, you can say:

```
rc.listener lsnr=<LSNR> action=stat || print "<LSNR> did not come up."
```

For flag change, it is better to check directly, for example:

```
[[ $(rc.listener lsnr=<LSNR> action=flag) == "Y" ]] || exit 1
```

PHILOSOPHY

Please see this section in **rc.oracle help=y**.

MISCELLANEOUS INFORMATION

Please see this section in **rc.oracle help=y**.

AUTHOR AND ACKNOWLEDGMENT

Michael Wang <xw73@columbia.edu> with help from many people. Contributions are acknowledged in the version history within the programs.

VERSION HISTORY

```

version 10.6, 2008-05-26, Michael Wang <xw73@columbia.edu>.
* Port to ksh 88 requested and sponsored by
+ DataBase Intelligence Group (http://dbigusa.com).
* Various fix and clean up.

version 10.5, 2004-10-18, Michael Wang <xw73@columbia.edu>.
* Enhanced get_var function.

version 10.4, 2004-08-29, Michael Wang <xw73@columbia.edu>.
* Tested on standalone AIX 5.2 with reboot.

version 10.3, 2004-08-23, Michael Wang <xw73@columbia.edu>.
* revert to changing flag to Y after online|offline|clean
+ per discovery of VCS behavior by Jose Bacalla.
* Added flat_opt function.

version 10.2, 2004-08-21, Michael Wang <xw73@columbia.edu>.
* Tested Linux RAC (Oracle 9.2.0.4 on RHEL 3.0 compatible).

version 10.1, 2004-08-20, Michael Wang <xw73@columbia.edu>.
* Tested on AIX 5.2 VCS with Roy Morton.

version 10.0, 2004-08-10, Michael Wang <xw73@columbia.edu>.
* Rewrite to address the following issues:
+ PSONLY and NOMONITOR options.
+ Optional notification for monitor failure and state change.
+ Self maintained logs: clean user experience and capability to debug.
+ Linux (redhat) support: chkconfig and subsys lock.
+ modularity attempt for futher development: rc_listener function.

version 9.6, 2003-06-10, Michael Wang <xw73@columbia.edu>.
* Handles LISTENER_<Sid>, listener_<Sid>, and ListNer_<Sid>.

version 9.5, 2003-03-04, Michael Wang <xw73@columbia.edu>.
* Changed "ksh $0" to "$0" so that what in #! line will be used.
* Set UNIX95 for HP-UX to get SUSv2 bahavior for ps command (-o option).

version 9.3b, 2002-11-20, Michael Wang <xw73@columbia.edu>.
* Added "[[ -n "$PID" ]]" before "kill $PID".

```

version 9.3a, 2002-10-01, Michael Wang <xw73@columbia.edu>.
 * Fixed the typo "RANDOWM => RANDOM".

version 9.3, 2002-04-25, Michael Wang <xw73@columbia.edu>.
 * Added version=y.
 * "kill -KILL \$i" => "kill -KILL \$PID".

version 9.2, 2002-01-14, Michael Wang <xw73@columbia.edu>.
 * Accepts both LISTENER_SID and SID_LISTENER as site standard.
 * Fixed the problem that "help=y" leaves an empty dir in /tmp.
 * Added the missing 2nd "\$" in "cp -p \$ORATAB \$ORATAB.tmp".
 * Changed "exit -- \$?" to "exit \$?": (exit -- 1); print \$? => 0 in ksh88.

version 9.1, 2001-12-03, Michael Wang (xw73@columbia.edu).
 * New way of getting SID_LINE:
 (1) SID_LISTENER => \$ORACLE_BASE/.rc.oracle.cf: ##_<LISTENER_NAME>:*
 (2) LISTENER_NAME => \$ORACLE_BASE/.rc.oracle.cf: ##_<LISTENER_NAME>:*
 (3) /var/opt/oracle/oratab: ##_<LISTENER_NAME>
 (4) /var/opt/oracle/oratab: SID:*
 * Derive owner from \$ORACLE_HOME/bin/lsnrctl.
 * TNS_ADMIN default to \$ORACLE_HOME/network/admin or /var/opt/oracle
 wherever listener.ora exists.
 * Added reload option.
 * Fix FTIME issue:
 j=; unset j; j=011; print "\$j" => 9
 typeset -Z6 j; j=; print "\$j" => "<sp><sp><sp><sp><sp><sp>"
 - Bourne shell detection simplification. "PATH= print" and (print) forks,
 and only forked stderr can be redirected in Bourne shell.
 - Changed "exit -- -1" to "exit 127". (exit -- -1); print \$? => 0 in ksh88.

version 9.0, 05/26/2001, Michael Wang (xw73@columbia.edu).
 * Added "METHOD=abort" for stop option, which is used by VCS clean, per
 Mike Suarez. This fixes problem preventing failover when network is down.
 * Added "ps" test in monitor to prevent hanging when network is down.
 * Added support for locally installed Oracle software ("VCS Concurrency
 Violation") per Alfonso Di Capo, Andrew Blatt, Babar Saeed, Diane Yee.
 * Added pager/email notification, and action=page|mail, message=... options
 with help from Andrew Blatt, Janet Zhu on CVS. "A nasty solution for a
 nasty problem in a nasty world"(TM).
 * Check FLAG before lsnrctl to ease the upgrade per Raj Pande.
 * "help=y" now uses "real man"(TM) page. Eliminated less helpful online help.
 * FLAG/FTIME update fix.
 - used POSIX PATH.
 - Use of POSIX "id -u" and "id -un" command.
 - Added "print" in additon to "\$RANDOM" for ksh test to exclude bash.
 - Fixed "... | SUCCESS=Y". In PD KSH v5.2.14 99/07/13.2 (on Red Hat Linux
 7.1, Kernel 2.4.4), the last pipeline is not run in current shell.
 - Changed "exit -1" to "exit 127" for PD KSH.
 - Workaround different behaviors on "Ctrl-C" on trap between PD KSH and
 AT&T KSH: PD KSH does not run exit trap upon "Ctrl-C", AT&T KSH does.
 - uses cp -p \$ORATAB \$ORATAB.tmp to create a temp file with same permission.
 - Eliminate fork (grep) in processing SID_LINE.

version 5.4, 02/21/2001, Michael Wang (xw73@columbia.edu).

- * Tightened up the locking code.
- * Added restart option for convenience only per Raj Pande. It stop and start the listener with default options.
- * Added identifier "\$LISTENER: " for flag change message.
- * exit 255 => exit -1
- * Change [[-z \$ORATAB && -r \$i]] && ORATAB=\$i to [[-r \$i]] && { ORATAB=\$i; break; }
- * Last line of start/stop options was: [[\$SHOW = Y]] && exit -1. [[\$SHOW = Y]] would be the last command if it is false and hence its status becomes the status of the script. The last line is changed to: ((status == 0 && fstatus == 0)).

version 5.3, 01/31/2001, Michael Wang (xw73@columbia.edu).

- * Added date before "tail -1".
- * Change [[-z \$Perl && -x \$i]] && Perl=\$i to [[-x \$i]] && { Perl=\$i; break; } for efficiency.

version 5.2, 01/26/2001, Michael Wang (xw73@columbia.edu).

- * Added ftime= option for start/stop.

version 5.1, 01/05/2000, Michael Wang (xw73@columbia.edu).

- * change "exit 0" to "exit \$?" in oracle-SID case. This affects backup.
- * change "FOREVER" to "1 DAY".

version 5.0, 12/25/2000, Michael Wang (xw73@columbia.edu).

To keep in sync with rc.oracle

version 4.0, 10/10/2000, Michael Wang (xw73@columbia.edu).

- * version number advanced beyond pi.
- * Exit code changed from 0 to 4 when Oracle executable can not be found.
- * Array can not be reset on Version M-11/16/88f on AIX 4.3.3
i[0]=; typeset -u i; i=; unset i; i=b; echo \$i => B
Changed to i to ix to avoid conflict.
- * "==" in [[string == pattern]] is replaced by "=" for compatibility with older Korn Shell (eg Version M-11/16/88f).
- * Get rid of the_space_holder.
- * Unset name for name=value pair. Example, TEST=.

version 3.14159, 08/18/2000, Michael Wang (xw73@columbia.edu).

- * Rewrite "[[-z \$(eval echo \\$\$i)]]" as "eval [[-z \\$\$i]]". This reduces the number of forks. This was suggested by Dan A. Mercer on the internet.
- * Prerequisite:
- /var/opt/oracle/listener.LISTENER_NAME:
LISTENER_NAME:ORACLE_HOME:Y/N:TNS_ADMIN:OWNER

version 3.1415, 07/22/2000, Michael Wang (xw73@columbia.edu).

- * Expanded listener's oratab to include owner in support of running as different \$OWNER.
- * Enhanced SHOW=Y option to display statement to lsnrctl.
- * FLAG=NULL option for start/stop to leave FLAG alone.
- * unset LD_LIBRARY_PATH.
Properly linked oracle executables do not need LD_LIBRARY_PATH. In Oracle 8i, set LD_LIBRARY_PATH causes listener problem, Ref: TAR 12953862.600, Doc ID 1023333.1, Bug ID 1147434.
- * MASSIVE code clean up to support above functionalities and for programming purity and efficiency.

version 3.141, 07/09/2000, Michael Wang (xw73@columbia.edu).
* Minor change on PATH and id for Linux compatibility.

version 3.14, 03/17/2000, Michael Wang (xw73@columbia.edu).
* implemented TNS_ADMIN.

version 3.1, 01/20/2000, Michael Wang (xw73@columbia.edu).
* Minor midifications in Oracle env variable determination and verification.

version 3.0, 12/27/1999, Michael Wang (xw73@columbia.edu).
* Modified in sync with oracle-SID

version 1.0, 07/29/1998, Michael Wang (xw73@columbia.edu).
* IPO.