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Summary

Symptom

You want to use SAP software on SUSE LINUX Enterprise Server 9.

More Terms

SUSE, SLES, Enterprise Server, suse, SuSE, Novell, OES, Open Enterprise Server, novell, Power, Linux on POWER, ppc64, ppc, iSeries, pSeries, as/400, as400, LINUX, Blade Server, Blade, PowerPC, power, ia64, x86, x86_64

Cause and Prerequisites

You want to use SAP software on SUSE LINUX Enterprise Server 9.

Solution

This document deals with installation and configuration of SAP Software on SUSE LINUX Enterprise Server 9, as well as upgrading an existing SAP system from SUSE LINUX Enterprise Server 8 (SLES 8) and earlier to SUSE LINUX Enterprise Server 9.

This note does not describe how to install or configure SUSE LINUX Enterprise Server 9 as a basis for a database server.

The following hardware platforms are certified to use SAP software on SUSE LINUX Enterprise Server 9 (SLES 9) and Novell Open Enterprise Server (OES):

- o x86 (Intel-compatible 32-bit -- "i386/i586/i686")
SUSE LINUX Enterprise Server 9 (SLES 9) for x86, and
Novell Open Enterprise Server (OES) with Service Pack 2 (SP2).
Only OES SP2 and later are certified for and supported with SAP
software.
- o x86_64 (AMD and Intel-compatible 32- and 64-bit - "x86_64")
SUSE LINUX Enterprise Server 9 (SLES 9) for AMD64 and Intel EM64T
- o IA64 (Intel Itanium2 64-bit - "ia64")
SUSE LINUX Enterprise Server 9 (SLES 9) for Itanium Processor
Family
- o IBM zSeries (64-bit - "s390x")
SUSE LINUX Enterprise Server 9 (SLES 9) for IBM zSeries
- o IBM Power (64-bit - "ppc")
SUSE LINUX Enterprise Server 9 (SLES 9) for IBM POWER

Requirements for support

To receive full support for your SAP system, the following requirements must be met:

- o To ensure support for problems that may occur with the operating

system, you require a valid support contract for SUSE LINUX Enterprise Server respectively Novell Open Enterprise Server. A support contract can be made directly with Novell, or with a support partner who is authorized to redirect possible level 3 support queries to Novell.

For more information, see also:

<http://support.novell.com/linux/>
http://www.novell.com/licensing/linux_upg/index.html

or contact your local Novell sales representative.

For more information about "SUSE Priority Support for SAP applications", please, refer to SAP Note 1056161 for further informations.

- o You must use hardware that is certified by your hardware vendor for use with SAP on Linux.
See SAP Note 171356 for a list of the corresponding notes of hardware partners.
- o You may use any Linux kernel provided by Novell SUSE for your architecture.
Usually this will be the kernel selected as default to be installed by YaST, unless you up-front are aware of special needs (like needing "kernel-bigsmp" on 32-bit architectures).

Life cycle of SUSE LINUX Enterprise Server 9 (SLES 9)

An overview over the various life cycles for the SUSE LINUX Enterprise Server product line can be found under the URL:

http://support.novell.com/lifecycle/index.jsp?sourceid=suplnav5_lifecycle

Under the heading "Support status by product" (found in the upper right corner of the general description of the life cycles) enter the word "LINUX" (without the quotes) and click on the "Search" button to get the life cycles for the SLE (SUSE LINUX Enterprise) products, and look for the version(s) that has your interest.

Life cycle of Novell Open Enterprise Server (OES) SP2

Please, refer to the paragraph above "Life cycle of SUSE LINUX Enterprise Server 9 (SLES 9)" and replace the search word "LINUX" with "Open Enterprise" to get the life cycle for the OES products.

Service Packs for SUSE LINUX Enterprise Server 9 (SLES 9)

Updates for SLES 9 are released in the form of Service Packs (SP). When you

import a Service Pack, many RPM packages are updated to a new version. For SLES 9 you may use all Service Packs officially released by Novell. It is sufficient and highly recommended to install the most current Service Pack released by Novell.

The most current Service Pack for SLES 9 at present time is Service Pack 3.

After making changes to the "glibc" (for example, after an update) you must reinstall the "saplocales" package, for further information refer to below and to SAP note 171356.

Installing SUSE LINUX Enterprise Server 9 (SLES 9)

Install the operating system as described in the documentation delivered with the product, the "Start-up Guide", as well as digital documents available in PDF format in the "/docu/" directory of the installation medium under the respective languages supported in the current release (e.g. English is found under "/docu/en/"):

"manual.pdf", "preparation.pdf", and "startup.pdf".

- o Select English as the installation and system language. If you want to use several languages, the following workaround must be applied in order to support the native languages:

```
cp /usr/lib/gconv/gconv-modules /usr/lib64/gconv/
```

This work around is only needed with the SLES 9 initial release. Starting with SLES 9 Service Package 1 (SLES 9 SP1) and later this work around is no longer needed.

- o Select the "C/C++ Compiler and Tools" in the package selection menu to be installed. This should be done as a general rule, and **must** be done when ORACLE is being installed on the system, while the ORACLE install process requires the compiling tools to be present.
- o If you intend to install Oracle and SAP on the same system, please, **do not** select the "Oracle Server Base" in the package selection menu (i.e. do not installation the "orarun" package) on the system. Doing so, will prevent "sapinst" from doing a correct installation of the SAP system parts.

Note the following additional instructions:

- o Manually adjust the hard disk partitioning to the requirements of the SAP components. SAP components and any database components are mostly installed on separate partitions.
- o Use the standard installation as a starting point when selecting the packages in YaST.
- o **Very important:** Since NIS is currently not "thread safe", problems and errors may occur in multithreading applications of the SAP server, if NIS is used to resolve hostnames, services or RPC calls.

Therefore, when you activate NIS during the installation, you need to check the "/etc/nsswitch.conf" file after the first system restart.

The entries in "/etc/nsswitch.conf":

```
hosts:
networks:
rpc:
```

must **not** contain "nis" as lookup service. If they do, delete "nis" or replace it with another service.

For details about this, see the manpage for "nsswitch.conf".

This problem has been solved in SLES 9 Service Pack 3 (SLES 9 SP3).

- o If you can access an NTP server, you should configure and activate the Network Time Protocol service (this can easily be done using YaST -> Network services -> NTP client). This automatically synchronizes the date and time of all SAP application servers.
- o After the installation, carry out an online update either using YaST or manually, to bring the system up to date.
- o The recommended size of the transfer memory (swap space) is double that of the main memory (2 x RAM). The Linux kernel usually requires little swap space because other limits are reached before the swap space can be used completely ("late assignment"). If you decide that a larger swap space is nevertheless necessary for operating SAP software, the necessary enhancements can be carried out at any time using distribution-specific tools.
- o The "hostname" command may only output the host name and not the "Qualified Domain Name".
Example: Fully qualified domain name is "ls3001.example.com";
needed output of "hostname" is "ls3001".
When the system has been correctly configured, "hostname -f" can be used to get the fully qualified domain name.

Linux kernel

For SLES 9 you may use all Linux kernel packages officially released by Novell. According to functional and security patches we recommend to install a Linux kernel package which was released quite recently.

If you do need to install a new kernel version on your system manually, proceed as follows:

Log on to the system as system administrator (the "root" user) and install the kernel package required:

```
rpm -Uvh <kernel.rpm>
```

The kernel and initrd images, shared libraries and kernel modules are installed.

In addition, the bootloader configuration in the file "/boot/grub/menu.lst" is automatically adjusted to the new kernel version (default bootloader GRUB).

Note:

In some cases, it is better to keep the old kernel version in addition to the new kernel. In this case, install the new kernel by using the command:

```
rpm -ivh --force <kernel.rpm>
```

The old kernel and initrd is still available under "vmlinuz.previous" respectively "initrd.previous".

To be able to boot this kernel, you must create a corresponding entry in the file:

```
/boot/grub/menu.lst
```

GLIBC

For SLES 9 you may use all Linux glibc packages officially released by Novell. According to functional and security patches we recommend to install a Linux glibc package which was released quite recently.

After making changes to the glibc (for example, after an update) you must reinstall the "saplocales" package.

Attached to SAP Note 171356 is the current "saplocales" package and additional information to it.

You can install the "saplocales" package (as user "root") as follows:

```
rpm -Uvh --force <saplocales.rpm>
```

Linux kernel parameters

The "sapinit.rpm" package.

To operate SAP software, you need to adjust some Linux kernel parameters.

These settings are set by the additional package "sapinit.rpm", which is now an integral part of the SLES product line as of SLES 9 SP3.

The "sapinit.rpm" package replaces the "suse-sapinit.rpm" package, which is now obsolete.

You can find the "sapinit.rpm" package on the SLES 9 SP3 media as well as on the Novell Maintenance Update Web site.

Upon installation of the "sapinit.rpm" package the parameter "SHMFS" (found in "/etc/sysconfig/kernel") will be adjusted, should this parameter have its default value (""), otherwise it will be left untouched.

Please, notice that the "sapinit.rpm" package currently **only**

adjusts the "SHMFS" parameter when being installed, and **only** if the parameter has its default value of "". Should it be necessary to make changes to this parameter, please, follow the instructions as given in SAP note 386605 to do so. Please, observe that any changes made to the "SMHFS" parameter is only activated after the system has been rebooted (see SAP note 386605 for instructions on how to make the changes active without rebooting the system).

Installed is also the file "/etc/sysctl.conf.sap", which contains the kernel parameters of specific interest for an SAP system. The activation of the parameter values found in "/etc/sysctl.conf.sap" is done with the command:

```
rcsapr3 start
```

This command can only be and only works, when executed as user "root". The parameters in "/etc/sysctl.conf.sap" is activated upon installation of the "sapinit.rpm" package, as well as upon reboots of the system.

After having made any changes to the "/etc/sysctl.conf.sap" file, these changes will first take effect either after a reboot or after having (re)issued the "rcsapr3 start" command.

Work-around for bug in kernel delivered with SLES 9 SP3.

Due to a bug in the delivered kernel with SLES 9 SP3 (kernel 2.6.5-7.244), the activation of the settings found in the file "/etc/sysctl.conf.sap" will result in the following error message:

```
error: "vm.heap-stack-gap" is an unknown key
```

In order to fix this, please, update your system with the newest available kernel via YOU (any update kernel with a version number higher than 2.6.5-7.252 fixes this issue).

Upgrading from SUSE LINUX Enterprise Server 8 (SLES 8)

Customers who previously used SLES 8 can use YaST to upgrade their system directly to SLES 9.

This means that they do not require a new installation.

You will find a detailed description of the upgrade from SLES 8 to SLES 9 in the documentation delivered on the SLES 9 installation media ("manual.pdf") in the section entitled "Updating the System and Package Administration".

The delivered PDF document "manual.pdf" can be found in the language specific directory of the current supported languages on the first CD under the "/docu" directory -- e.g. the English version is found under "/docu/en/manual.pdf".

Kindly notice that the first CD of the SLES 9 SPx CD-set also contains the "/docu" directory, and that the documentation found here may be newer than the documentation found on the original SLES 9 CD-set.

Using raw devices, "Journaling File System" and LVM

SAP Note 405827 contains information on using raw devices or a 'journaling file system'.

For further information about the "Logical Volume Manager" (LVM), see SAP Note 597415.

Additional notes on installing an SAP system on SLES 9

Number of "file descriptors"

Some SAP applications (for example, J2EE Engine, MaxDB, XI, portal) need a larger number of "file descriptors" than is set by default (1024).

To increase the default number of files that a process can open simultaneously to e.g. 32800, edit the following file:

```
/etc/security/limits.conf
```

and add the following lines to it:

```
*          hard    nofile    32800
*          soft    nofile    32800
```

These changes take effect after you log off and log back on again (in "bash" test with: `ulimit -n`).

If you need more than 32800 "file descriptors", you can increase the value even further -- e.g. when using the SAP J2EE Engine.

Patching SAPINST

In some cases, SAPINST does not start correctly or terminates abnormally.

In this situation, set the "LD_ASSUME_KERNEL" environment variable as follows in the environment of the user who starts SAPINST (when using the "csh" or "tcsh" shells):

```
setenv LD_ASSUME_KERNEL 2.4.1
```

When using the "bash" shell, use:

```
export LD_ASSUME_KERNEL="2.4.1"
```

If this also fails, you will need to patch the SAPINST. SAP Note 722890 contains information about this.

On "x86_64", the SAPINST installation of a Java component terminates abnormally

During the installation of the J2EE Addins, SAPinst terminates in the "Map SLD Roles" phase with an error message.

During the installation or patching of a Java component, SAPINST terminates with "no such child process".

If this happens, the installation can be continued using the following method:

- Stop SAPINST and set the "LD_ASSUME_KERNEL" environment variable:
 setenv LD_ASSUME_KERNEL 2.4.1
- Then restart SAPINST and continue the installation.
- The installation should then run successfully.
- The environment variable "LD_ASSUME_KERNEL" can then be removed again.

Patches for the SAP kernel

If errors occur when installing SAP R/3, or if the installed system does not start, you may need to import the latest patch for the SAP kernel before continuing to install the SAP kernel.

To ensure secure operation of the SAP system on SLES 9 (using the Linux kernel 2.6.x), you must use the following patch level or higher of the SAP kernel:

SAP kernel	Minimum patch level
46D_EXT	>= 1811
620	>= 1441
640	>= 12

Error messages when executing SAPINST

- o The "connect screen" dialog terminates with the error message SAPINST: GUI no connect".
The reason for this is that the DNS name resolve used by SAPINST does not work due to the IPv6 support, activated in SLES9 by default.
Solution:
 - Enter the IP "127.0.0.1" instead of "localhost" in the dialog.
- o For installations with SAPDB 7.4, installation terminates in the step "RFCRSWBOINI_IND_IND" with the following error message:
"*** ERROR => ADABAS Log Segment Size of 42666 pages is too small, MINIMUM size has to be 49990 pages"
after which the SAP system cannot be started.
Solution:
 - Stop the SAP system ("stopsap" as user "<SID>adm"), change the "log segment size" in the database by using DBMGUI.
 - Then restart the database by using DBMGUI and restart the SAP system ("startsap" as user "<SID>adm").
 - It may also be necessary to import a current patch level of the SAP kernel.

NPTL

SLES 9 delivers the Native Posix Threading Library (NPTL), an improved threading implementation for Linux. NPTL follows the POSIX

threading standards much more strictly than the LinuxThreads formerly used.

If your SAP kernel is not compatible with NPTL, you require the newest available SAP kernel from the SAP Service Marketplace. Your SAP kernel is not compatible with NPTL if, for example, calling "disp+work" ends with a "Floating Point Exception".

For SAP kernel version 7.00 and higher, NPTL compatibility is an absolute prerequisite of the operating system. In other words, the GLIBC **must** be compiled for the "i686" architecture (this applies **only** for the Intel 32-bit architecture generally known under the name "i386" or "ix86". All other architectures have NPTL natively compiled in). You can check this with the following command:

```
rpm -qi glibc | grep Distribution
```

NPTL and LinuxThreads -- special handling of known programs

Note that the lists below may not be complete or valid for all versions and platforms.

- o Programs you should not execute with NPTL:
 - SAP Kernel <= 6.20 (except for the latest releases of 4.6D_EXT and 6.20).
 - SAPinst
 - SAPDB, MAXDB Version 7.5 (except on "x86_64"), refer to SAP Note 788272.
 - ORACLE "runInstaller".

Here the environment variable "LD_ASSUME_KERNEL" must be set to "2.4.1":

```
setenv LD_ASSUME_KERNEL 2.4.1
```

- o Programs you should not execute with LinuxThreads:
 - SAP Kernel >= 7.00
In this case, the environment variable "LD_ASSUME_KERNEL" may **not** be set!

PAM configuration needed for "sapstartsrv".

To enable the Web Service Interface (which uses "sapstartsrv" and "sapcontrol"), the PAM configuration file named "/etc/pam.d/sapstartsrv" has to exist. This file should have been installed on your system as part of the installation of the "sapstartsrv" service.

If not, you have to create the file "/etc/pam.d/sapstartsrv" manually using your favorite editor (as "root") with the following contents:

```
##%PAM-1.0
```

```
auth      requisite      pam_unix_auth.so      nullok
```

The file must be owned by "root" in group "root" and be readonly (i.e. having the file permission modes 444 ("r--r--r--")).

Corrections to previous versions of this note regarding the PAM configuration for "sapstartsrv".

In the previous versions of this note (English versions with version numbers <= 62 from 2007-01-11), it was described how to change the contents of the PAM configuration file "/etc/pam.d/login". As this file is a system wide used PAM configuration file, it is **not** recommendable to make **any** changes to this file in order for the "sapstartsrv" to work. The "sapstartsrv" now works using its own PAM configuration file (see previous section).

Because of the above, kindly make sure that the (system) PAM configuration file "/etc/pam.d/login" does **not** contain the line:

```
auth      requisite      pam_unix_auth.so      nullok
#set_secrpc
```

Should the file contain the above line, you **must** replace the string "pam_unix_auth.so" with "pam_unix2.so", as well as follow the instructions as given in the previous section (if necessary).

Additional notes for IBM DB2

- o The installation of the RDBMS software IBM DB2 V8.x is only possible in scroll mode with the following command (no graphical user interface):

```
db2_install
```

After the DB2 installation is complete, the license must be added manually as described in SAP Note 801415.

- o Under the URL:

```
http://www.ibm.com/support/docview.wss?rs=865&uid=swg21237911
```

you can read more about the prerequisites for DB2 installations under SLES 9.

Under the URL (although this does not specifically refer to Linux nor SLES 9):

```
http://www-1.ibm.com/support/docview.wss?rs=865&uid=swg21238113
```

you can read more about DB2 product installation on NFS (Network File System), including a reference to the IBM white paper "Setting Up DB2 on NFS Mounted File System".

Additional notes for MAXDB.

The following error may occur when the database is loaded:

```
ERROR : Prepare/modify for UpdateIndexTable failed (dbrc=99).
(SQL error -7009)
error message returned by DbSl:
NULL value in key column not allowed
```

In this case, you must update the SAP kernel to the latest version.

General notes for both ORACLE 9.x and ORACLE 10.x

- o Please keep in mind not to use "cpio" when creating database backups with SAP tool BRBACKUP.
The "cpio" program is not capable of handling file sizes equal to or greater than 2 GiB.
As preferred solution use the "dd" program instead.
More information can be found in SAP note 20577.
- o When using the ORACLE database together with the "reiserfs" file system type (the default suggested file system type, when using YaST to create file systems on partitions), it is a **must** to mount the file system, where the ORACLE system and database has been installed, with the "reiserfs" mount option "notail", e.g. by inserting this in the "/etc/fstab" entry for the file system(s) in question:

```
/dev/sda1 /oracle reiserfs notail,acl,user_xattr 1 2
```

For further informations refer to SAP Note 834343 and 914177.

- o When creating the database, the process may terminate with the error message:

```
ORA-27125: "unable to create shared memory segment"
```

To avoid this problem during the installation as well as when the ORACLE database is being started after a reboot of the system, you need to add the following line:

```
vm.disable_cap_mlock=1
```

to the file "/etc/sysctl.conf.sap" (this requires that the "suse-sapinit.rpm" (SLES 9, SLES 9 SP1, SLES 9 SP2) respectively "sapinit.rpm" (SLES 9 SP3 and future releases) RPM package has been installed on the system - see above under the section **Linux kernel parameters** for further details on this RPM package).

In order for the change to take effect in the running system, you must run the following command as the user "root":

```
rksapr3 restart
```

- o Kindly refer to SAP Note 986578 for specific installation instructions of ORACLE on the Intel Itanium ("ia64") platform.

Additional notes for ORACLE 9.x

When you install the current ORACLE Version 9.x released for SAP on SUSE LINUX Enterprise Server 9, there are various settings and procedures to be followed.

- o ORACLE patch set 9.2.0.5 (at least) is essential to use on all platforms, except for the platform "x86_64" (AMD64 and Intel EM64T), where you must install at least patch set 9.2.0.6.
- o For the Intel Itanium "ia64" architecture, refer to SAP Note 875206.
- o There is also a detailed installation manual for ORACLE 9.2.x in the Novell network under:

`http://ftp.novell.com/partners/oracle/docs/9205_sles9_install.pdf`

The following examples all assume the usage of an Intel-compatible 32-bit architecture ("i386/i484/i586/i686") unless otherwise noted.

Please, change the directory paths and names depending on your system settings.

- o Obtain the ORACLE Support Packages and ORACLE patch set required directly from the SAP Service Marketplace:

`http://service.sap.com/patches`

Downloads > Database Patches > Oracle > Oracle 32-Bit > Oracle 9.2.0. 32-Bit > Oracle 9.2.0.4. 32-Bit > Linux

Downloads > Database Patches > Oracle > Oracle 32-Bit > Oracle 9.2.0. 32-Bit > Oracle 9.2.0.5. 32-Bit > Linux

Downloads > Database Patches > Oracle > Oracle 32-Bit > Oracle 9.2.0. 32-Bit > Oracle 9.2.0.6. 32-Bit > Linux

- o In YaST2, menu "Install and Remove Software", make sure that the menu options "Graphical Base System" and "C/C++ Compiler and Tools" are installed (checked) under the filter entry "Filter: Selections".
- o Before you run the "runinstaller", you need to set the environment variable "LD_ASSUME_KERNEL" to "2.4.1":

```
setenv LD_ASSUME_KERNEL 2.4.1
```

- o In addition to the above, the "orarun" package from the SLES 9 installation medium (on CD3 from the original SLES 9 CD set) must also be installed, if you are installing from the SLES 9 or SLES 9 SP1 CD sets:

```
rpm -ivh orarun-1.8-109.5.i586.rpm
```

If you are installing from the SLES 9 SP2 or later CD sets, use the newer "orarun" package from the SLES 9 SPx CD sets (found on CD2 of

the respective SLES 9 SPx CD set):

```
rpm -ivh orarun-1.8-109.15.i586.rpm
```

In both cases, a further environment variable "LD_PRELOAD" needs to be set (as the user "ora<SID>" who will start "runinstaller"):

```
setenv LD_PRELOAD /usr/lib/libInternalSymbols.so
```

- o On the the "x86_64" architecture (AMD64 and Intel EM64T), you do not have to install "orarun" nor set the environment variable "LD_PRELOAD".
- o On "ia64", you still **have** to make use of the **binutils 2.12** for installing Oracle 9 (see SLES 8 SAP Note 767814).
- o "runinstaller" can be started.
- o Ignore the error message:
"Error in invoking target install of makefile
/oracle/<SID>/920_32/rdbms/lib/ins_rdbms.mk".
This error is corrected, when you install the patchset 9.2.0.5 or 9.2.0.6.
This error does not occur on "x86_64".
- o Ignore the error message:
"Error in invoking target install of makefile
/oracle/<SID>/920_32/ctx/lib/ins_ctx.mk".
This error is corrected, when you install the patchset 9.2.0.5 or 9.2.0.6.
This error does not occur on "x86_64".
- o Ignore the error message:
"Error in invoking target install of makefile
/oracle/<SID>/920_32/network/lib/ins_oemagent.mk".
This error is corrected by installing patch 3119415, see below.
These errors do not occur on "x86_64".
- o Install the ORACLE patch set 9.2.0.5 or 9.2.0.6, as described in SAP Note 539921.
- o On "x86_64", you **must** install ORACLE patch set 9.2.0.6.
- o On "ia64" the ORACLE patchset 9.2.0.7 has to be installed in order to fix the problems with starting the ORACLE database with the environment variable "LD_ASSUME_KERNEL" set, which is **not** allowed on "ia64".
See also SAP note 906403.
- o Install ORACLE patch "p3119415_9205_LINUX.zip" (for ORACLE 9.2.0.5) or "p3119415_9206_LINUX.zip" (for ORACLE 9.2.0.6); for more information, see SAP Note 306408.
You do not need to install "p3119415_9206_LINUX.zip" (for ORACLE 9.2.0.6) on "x86_64".
- o During the SAP installation with the "SAPinst" program, the installation process terminates in the dialog "create sap license" with the error message "library iamodora missing", while several

required libraries are missing.
To correct this error, install these libraries in the installation directory either after the installer has terminated or before calling "SAPinst", using the following command:

```
SAPCAR -xvf /<sapinst-CD>/SAPINST/UNIX/LINUX_32/SAPPROD.SAR
```

Header Data

Release Status:	Für Kunden freigegeben
Released on:	23.10.2007 15:34:29
Priority:	Empfehlungen/Zusatzinfo
Category:	Info zur Installation
Main Component	BC-OP-LNX-SUSE SUSE Linux

The note is not release-dependent.

Related Notes

Number	Short Text
1066142	Linux: libj9vm22.so: cannot open shared object file
1021236	Linux: Using SAP Kernel 7.10 on RHEL4 and SLES9
1019585	Add. info. on upgrading to SAP NetWeaver 7.1 AS ABAP
958253	SUSE LINUX Enterprise Server 10: Installation notes
947991	Add. info.: Upgrade to SAP CRM 5.1 ABAP
941735	SAP memory management for 64-bit Linux systems
939677	Add. info. on upgrading to SAP NetWeaver 7.1 AS ABAP
936887	End of maintenance for Linux distributions
927637	Web service authentication in sapstartsrv as of Release 7.00
914177	File system reiserfs Oracle parameter filesystemio_options
906403	ORA-7445 during DESCRIBE
875206	Certification Oracle 9.2. on SLES9 Itanium
839624	ORA-27125 while starting Oracle instance
834343	Oracle 9.2 Platform Support for Async IO
825822	Installation 4.6C SR2 on Linux x86_64 with DB2
801415	DB6 Installation on Unix with db2_install
788272	Compatibility of Linux Kernel 2.6/NPTL with MaxDB
784391	SAP support terms and 3rd-party Linux kernel drivers
767814	SUSE LINUX Enterprise Server 8: Installation notes
765424	Linux: Released IBM Hardware - POWER based servers
722890	SAPinst or process started by SAPinst terminates abnormally

Number	Short Text
597415	Logical volume manager (LVM) on Linux
539921	Current patch set for Oracle 9.2.0
531069	Heterogeneous Unix - Unix Systems
516716	Linux: Locale problems after updating glibc
405827	Journalled file system and raw devices on Linux
386605	SAP Memory Management for Linux (32-bit)
306408	OPatch: Oracle tool for patch installation
171356	SAP software on Linux: Essential information
81737	DB2-z/OS: APAR List
20577	Cpio cannot backup files larger than or equal to 2 GB