SCO UnixWare® 7 Definitive 2018

RELEASE NOTES

About this Release

SCO UnixWare™ 7 Definitive 2018 is a new release of the SCO UnixWare 7 operating system from Xinuos, which includes SCO UnixWare 7, its maintenance packs and 7.1.4+ features, prior SCO UnixWare 7 Definitive features as well as additional functionality and maintenance.

SCO UnixWare 7 Definitive 2018, denoted as Definitive 2 Maintenance 1 (**D2M1**), is a successor release to SCO UnixWare 7 as well as a successor release to SCO UnixWare 7.1.4+.

These *Release Notes* accompany the

SCO UnixWare 7 Definitive 2018 GETTING STARTED GUIDE (December 2017)

which is also available for free download at the Xinuos web site portal.

The *Getting Started Guide* provides instructions for installing a new SCO UnixWare 7 Definitive 2018 Initial System Load (**ISL**) and for upgrading from a prior SCO UnixWare 7.1.4 MP4, SCO UnixWare 7.1.4+, or SCO UnixWare 7 Definitive release.

These *Release Notes* provide additional product, configuration, and troubleshooting information and are intended for administrators responsible for servers and storage systems.

Revisions

Revision	Date	Description
00	12/2015	Initial document release – UnixWare7D2M0.
01	12/2017	Update document release – UnixWare7D2M1 with sections transferred from UnixWare7D2M0 Getting Started Guide.

Contents of these Release Notes

Typographical Conventions

This document follows these conventions:

Convention	Usage	Examples
NOTE:	Important additional information or further explanation of a topic.	**Note:** A weekly backup is recommended.
WARNING:	The task or operation might have serious consequences if conducted incorrectly or without appropriate safeguards.	**Warning!** Do not change configuration parameters.
Bold	A command or system input that you type, or text or a button you select on a screen.	Click **HELP** for details on disaster recovery.
Italic	Italic font indicates any of the following: *A term with a specific meaning* in the context of this document. *Emphasis* on specific information. *Reference* to another document. *Variables* in a syntax statement for which values are substituted.	Detailed information on *disaster recovery* methods is available in the *Administrator Guide*. tar *[*zxvf*]* *file*.tgz
`Courier`	System output, file names or path names. Bold Courier for commands typed by user.	> Recovery in progress `tar cvf tarfile *.cc`
Angle <> Brackets	A required entry or parameter	installer-<*version#*>. run
Square *[ ]* Brackets	An optional entry or parameter.	tar *[*zxvf*]* *file*.tgz
Curly { } Brackets	A list of choices separated by a vertical bar | from which one must be selected.	Click { OK | Cancel }.

About SCO UnixWare™ 7 Definitive 2018

SCO UnixWare 7 Definitive 2018 from Xinuos is the latest UnixWare release. It includes the functionality provided by prior SCO UnixWare releases: SCO UnixWare 7.1.4; SCO UnixWare 7.1.4 Maintenance Pack (MP) 1 through 4; SCO UnixWare 7.1.4+ appliance and Versions 1 and 2; and UnixWare7D1M0 and UnixWare7D2M0. SCO UnixWare 7 Definitive 2018 also provides additional features and maintenance.

SCO UnixWare 7 Definitive 2018 is licensed for 32 CPUs, 500 users, and 64 GB of memory.

SCO UnixWare 7 Definitive 2018 includes the UnixWare Development Kit (UDK) along with a complimentary UDK license.

For more information on the SCO UnixWare 7 Definitive product family, go to http://www.xinuos.com.

SCO UnixWare 7 Definitive 2018 Media

SCO UnixWare 7 Definitive 2018, unlike its predecessor UnixWare7D2M0, is provided on a single DVD. It can be downloaded from: http://www.xinuos.com can be used to either:

- Install a new Xinuos SCO UnixWare 7 Definitive 2018 system. This system can be a physical system, a VMware™ virtual machine, or a VirtualBox™ virtual machine **running on OpenServer 10**. Such an installation is called an Initial System Installation (**ISL**).
- Update an existing installation of SCO UnixWare 7.1.4 MP4, SCO UnixWare 7.1.4+, or UnixWare7D1M0 or UnixWare7D2M0 to SCO UnixWare 7 Definitive 2018. This system can be a physical system or a virtual machine running on VMware™ or VirtualBox™.

Unlike the previous UnixWare-D2M0, SCO UnixWare 7 Definitive 2018 ISL automatically installs all required SCO UnixWare 7 Definitive packages. To quicken the installation process, ISL no longer stops to prompt for optional packages. Instead, you install optional packages by running **install.sh** after ISL.

SCO UnixWare 7 Definitive 2018 Supported Platforms and Hardware Support

SCO UnixWare 7 Definitive 2018 is supported on these platforms:

- VMware Version 5.5, 6.0, and 6.5.
- VirtualBox running under OpenServer 10.3. Please use the latest Xinuos tested version of VirtualBox which is provided in the OpenServer 10.3 repository.

- Many physical servers:

  SCO UnixWare 7 Definitive 2018 includes drivers for a broad range of hardware. See the */info/drivers* directory on the install DVD for information about supported HBA and network device drivers. For hardware limitations and workarounds, see the Support Library at **http://www.sco.com/support**.

  Servers must include a boot DVD drive and 1 GB of RAM. A disk size of at least 8 GB is recommended but this depends on your server's purpose. SCO UnixWare 7 Definitive 2018 will install with 2 GB (and less if you choose Small Footprint).

Upgrading from an Earlier Version

You can upgrade to SCO UnixWare 7 Definitive 2018 from the following earlier releases:

- SCO UnixWare 7.1.4 MP4
- SCO UnixWare 7.1.4+
- UnixWare7D1M0 or UnixWare7D2M0

Note:	*SCO UnixWare 7 Definitive 2018 does not include a VMware appliance as previously provided with the initial SCO UnixWare 7.1.4+ release. To install a new virtual machine running SCO UnixWare 7 Definitive 2018 on VMware, you can create a virtual machine and install from the Install DVD in much the same way as you would on a physical system. If you previously deployed the SCO UnixWare 7.1.4+ appliance, you can upgrade the resulting VM directly to SCO UnixWare 7 Definitive 2018 using the SCO UnixWare 7 Definitive 2018* ***install.sh*** *update script.*

See the *Getting Started Guide* for more information including the installation/upgrade instructions.

What's New in this Release

Highlights

The following subsections describes the new features and improvements in SCO UnixWare 7 Definitive since the original SCO UnixWare 7.1.4 release. Also see the Fixes and Enhancements section below for a list of changes made in this update.

SCO UnixWare 7.1.4 Maintenance Pack 1 – 4 and Update 7.1.4+ Version 1 Highlights

The *UW714+_Installation_And_UpdateGuide.html* describes the features in SCO UnixWare 7.1.4 Maintenance Pack 1 through Maintenance Pack 4 as well the features introduced in

SCO UnixWare 7.1.4+ Version 1: ftp://ftp.sco.com/pub/SCO UnixWare714+/714+/iso/uw714+/UW714+_Installation_And_UpdateGuide.html#features.

SCO UnixWare 7.1.4+ Version 1 was initially released as a virtual appliance in 2013 and then as an upgrade for SCO UnixWare 7.1.4 customers in 2014. The 7.1.4+ descriptions referenced above describes the post MP4 changes included in the SCO UnixWare 7.1.4+ upgrade.

Like the Maintenance Packs (MPs) that preceded it, SCO UnixWare 7.1.4+ Version 1 contained the features and fixes in the four predecessor MPs plus additional functionality and maintenance.

SCO UnixWare 7.1.4+ Version 2 and SCO UnixWare 7 Definitive (UnixWare7D1M0/UnixWare7D2M0) Highlights

SCO UnixWare 7.1.4+ Version 2 provided early access to the SCO UnixWare 7 Definitive feature set. These features were then perfected, along with a product name rebranding, in the UnixWare7D1M0 and UnixWare7D2M0 releases.

These releases provided the features and fixes previously released in SCO UnixWare 7.1.4+ Version 1. They also introduce additional new functionality and maintenance, including:

- Support for message signalled interrupts.
- Support on Xinuos OpenServer 10 for VirtualBox (version 4.3.30 in D2M0) virtual machines.
- Integration of additional maintenance such as bash-4.3.30b, openSSH-7.3p1e, openSSL1.0.2d, and rsync-3.1.1.
- Integration of device drivers released since SCO UnixWare 7.1.4+, such as the mpt2 HBA driver and an updated **bcme** driver that supports the Broadcom BCM5718 NIC.

SCO UnixWare 7 Definitive 2018 Highlights

SCO UnixWare 7 Definitive 2018 includes the features and fixes provided in the previous UnixWare7D2M0 and its predecessor releases. SCO UnixWare 7 Definitive 2018 also provides these improvements:

- Updated **ahci**, **megasas**, and **mpt2** device drivers; see the *info/drivers* subdirectory on the install DVD for details.
- Twenty-six updated/new open source packages; see the Package Version Information addendum below for the package versions.

NOTE:	*Some newer open source packages do not preserve compatibility with existing legacy ports and third-party applications; SCO UnixWare 7 Definitive 2018 provides both the old and new versions of such packages. The older generation ports are installed in the same location as before and continue to function as they previously did. Packages for the newer generation ports are identified by having **Xinuos** prefix their name; for example, **Xinuosbind**. Their binaries are installed in the **/opt/xinuos** directory. To use these new Xinuos* ports, see the instructions in the Using the New Xinuos* Packages section below.*

- Changes to enable SCO UnixWare 7 Definitive product line maintainability. This includes the renamed/new upgrade packages (uw714pd2m1 and uw714d) and set (**uw714sd2m1**); combining the former CD #1, CD MP, and UDK CD onto a single DVD ISO image; and auto-installation of the UDK license (for free) and the UDK.
- The **uw714pd2m1** package is the super patch to bring some SCO UnixWare 7.1.4 components up to the current SCO UnixWare 7 Definitive 2018 level; the **uw714d** package provides enabling infrastructure for the new **Xinuos*** packages.
- Additional maintenance; see the list under SCO UnixWare 7 Definitive 2018 Fixes below.

Licensing and Registering SCO UnixWare 7 Definitive 2018

SCO UnixWare 7 Definitive 2018 requires a new specific subscription license:

- Upgrades from SCO UnixWare 7.1.4 MP4, SCO UnixWare 7.1.4+ and earlier SCO UnixWare 7 Definitive (UnixWare7D1M0 or UnixWare7D2M0) require a new SCO UnixWare 7 Definitive 2018 license.
- During ISL you can provide this license or you can select a thirty-day free evaluation license. You will then need to purchase and register a SCO UnixWare 7 Definitive 2018 license before your evaluation period ends.
- Once your system is installed, log in to your Xinuos account to register your license. If this is your first time registering a license, you can create the account at https://www.xinuos.com.

Update Prerequisites

SCO UnixWare 7 Definitive 2018 can either be installed as a fresh ISL installation using the Install DVD or as an upgrade from SCO UnixWare 7.1.4 MP4 or later. This includes upgrades from any SCO UnixWare 7.1.4+ release (including the initial appliance, Version 1, or Version 2) or from an earlier SCO UnixWare 7 Definitive release (UnixWare7D1M0 or UnixWare7D2M0).

WARNING: *Before upgrading to SCO UnixWare 7 Definitive 2018, make sure you have good backups. The upgrade process is not reversible.*

- If you are running a SCO UnixWare 7.1.4 release prior to SCO UnixWare 7.1.4 MP4, first upgrade to SCO UnixWare 7.1.4 MP4 by using this media: http://www.sco.com/support/update/download/release.php?rid=337. After completing the upgrade to MP4 and rebooting, you can then use the SCO UnixWare 7 Definitive 2018 DVD to upgrade to this release.
- If you are running a SCO UnixWare 7 release prior to SCO UnixWare 7.1.4, first upgrade to SCO UnixWare 7.1.4 **and** reboot. Then upgrade to SCO UnixWare 7.1.4 MP4 as described in the previous paragraph.

Fixes and Enhancements

SCO UnixWare 7 Definitive 2018 is a cumulative update to the SCO UnixWare 7.1.4 and all successor releases. As such it has the fixes and enhancements in all the prior updates plus additional fixes and features. This section enumerates the change made during these various updates.

SCO UnixWare Maintenance Pack 1 – 4 and SCO UnixWare 7.1.4+ Version 1 Fixes

The *UW714+_Installation_And_UpdateGuide.html* enumerates the fixes in SCO UnixWare 7.1.4 Maintenance Pack 1 through Maintenance Pack 4 as well the fixes introduced in SCO UnixWare 7.1.4+ Version 1. You can view these descriptions here: ftp://ftp.sco.com/pub/SCO UnixWare714+/714+/iso/uw714+/UW714+_Installation_And_UpdateGuide.html#problems.

SCO UnixWare 7.1.4+ Version 2 and SCO UnixWare 7 Definitive (UnixWare7D1M0 and UnixWare-D2M0) Fixes

These fixes were provided in prior SCO UnixWare 7 Definitive releases:

ID	Description
536068: ptf9100a	**Correct ACPI parameter behavior** Setting the boot parameter ACPI=Y caused the system to behave as if ACPI=N. This has been fixed.
536069: ptf9100a	**Improve ACPI Tables** Fix errors in the retrieval and interpretation of device configuration information from the ACPI tables.
536076: ptf9100a	Fix errors seen when configuring the network with netcfg or scoadmin network.
536082 ptf9100b	Incorrect code in pcic Driver.o due to faulty compiler optimization.
536026:1 536026:2 536098:2 openssh-6.6.1p1c	OpenSSH 6.2p1c was web released prior to SCO UnixWare 7.1.4+ Version 2 and included in SCO UnixWare 7.1.4+ Version 2. SCO UnixWare 7 Definitive 2018 now includes OpenSSH 7.3p1e which includes the earlier fixes and features and some 7.4 fixes. A description of the features and fixes in the earlier release is here: http://ftp.sco.com/pub/SCO UnixWare714+/714+/other/openssh-6.6.1p1c/openssh-6_6_1p1c.txt
536098:1	• Patch to force use of UW7 getaddrinfo() at one point to honor lookup order in /etc/netconfig • Clean up dummy's type - 'OSR5_REMOTE=' dropped from front of line • Last patch to opensshd.init.in needs reflected in UW7 (SVR5) specific sshd.init
536108:2	As part of bhyve support, add psm_msi toolkit.
536108:2 536108:14	• Add support for bhyve, including MSI support and enabling OS to run when no BIOS is present. • Update PSM infrastructure to include support for bhyve, MSI, and BIOS-free operations.

ID	Description
	• For bhyve support, update PSM infrastructure to support MSI and BIOS-free environments
536108:5	**Added the vtblk device driver.** This device driver supports the VirtIO Block virtual device in environments such as bhyve, a tier 2 hypervisor/virtual machine manager running on OpenServer 10
536108:6	Update nd package to version 8.0.60, includes vtnet support for bhyve as well as other intervening updates.
536108:7	For bhyve, revert to earlier versions of mapkey.c and pcfont.c. Also add option for returning the number of ISL com ports.
536108:2 536108:3 536108:8 5361081	Add PSM infrastructure for bhyve support, MSI, X2APIC, and BIOS-free operation.
536108:8	• Get rid of unused global rgh_global in psm_time toolkit. • Update psm_mc146818 toolkit to work on bhyve. • For bhyve support, update psm_i8254 toolkit for programmable interval timer. • On bhyve, code that brings CPUs online must be run from boot engine, so bind to boot engine when executing such code. • For bhyve support, work around bhyve's lack of emulation of instructions with repz prefix in order to copy data from local APIC addresses. • For bhyve, do a CPU reset even though there is no keyboard controller. Also, while we're here, don't display a message about the PS/2 keyboard not found if PS2_KEYBOARD=AUTO.
536108:14	• For bhyve, count up PCI buses as part of supporting platforms that do not have a BIOS. • Skip pccard_verify calls on bhyve, since pccard_verify calls BIOS. • As part of bhyve support, add compiler long long routines to the PSM interface to allow PSM code to do long long math.

ID	Description
	• As part of bhyve support, permit operation on platforms that lack a BIOS.
536114:2 bash-4.3.30b	**Revise Bash to address "shellshock" security vulnerability** An updated Bash version, 4.3.30b, addresses the "shellshock" security vulnerability defined by the following CVEs: **CVE-2014-6271** **CVE-2014-6277** **CVE-2014-6278** **CVE-2014-7169** **CVE-2014-7186** **CVE-2014-7187** These vulnerabilities could allow a regular ash user to gain privileges through a crafted environment variable. bash-4.3.30b also corrects a problem processing the bash built-in command "echo -n", when bash is executing in POSIX mode.
536125:1	Update i_exit to handle PTFs.
536133:1	Update copyrights/address for uw714+ version 2, UnixWare7D1M0 and UnixWare7D2M0.
536145:1	Set default value of MSI_DISABLE to NO on bhyve and YES everywhere else.
536148:1	Base runtime packages not added to package menu when needed for packaged dependency resolution.
536151:1	Fix bug where the CD-ROM may not fully detach after being disconnected
536152:1	VMware vmtools and runtime not preselected.
OSR6-36	Resolved virtio-net issue with VB. As part of bhyve support, add MSI support.
UW7-0	Additional changes for SCO UnixWare 7.1.4+: • 536076:1 backed out! • Add vtblk version 1.0 as binary handoff for UW714+ Version 2. • Add Bhyve support Additional changes for SCO UnixWare 7 Definitive:

ID	Description
	• Fix CPU migration issue. • Remove MTRR warning message on VB with 2 vCPUS UnixWare7D1M0. • Enable MSI on VB. During upgrade, add rsync installation and update include files. Also copyright changes.
UW7-5	Copyright changes.
UW7-18	Update product name.
UW7-43	Fix clock issue on Virtual Box.
UW7-55	**Apache SSL issue** Start apache without ssl because of broken ssl in apache. (Fixed in UnixWare7D2M1 so that Apache can start with SSL). Also updated product name in MOTD.

SCO UnixWare 7 Definitive 2018 Fixes

These fixes are provided for the first time in SCO UnixWare 7 Definitive 2018:

ID	Description
OSR6-84	**Openssh Bug Fixes** Corrected /etc/tcp which was looking for wrong sshd process ID file. Also, modified /etc/init.d/opensshd to not kill the remote administrator's session if they restart sshd. For additional openssh improvements see the OpenSSH Configuration Notes section below.

OSR6-128	To enable installation on more platforms:
	• Disable the fd device driver.
	• Set these ISL parameters:
	`CONSOLE_VIDEO=VGA`
	`ENABLE_4GB_MEM=NO`
	• For ISL only (not upgrades), CONSOLE_VIDEO=VGA has been added to /stand/boot.

ID	Description
UW7-29	**rm –f updated for new standards.** The “rm -f” command with no specific files no longer returns an error code. This conforms to the upcoming POSIX standard http://austingroupbugs.net/view.php?id=542. It also matches most other UNIX/BSD/Linux implementations and keeps open source configure scripts from complaining. Any existing shell scripts which expect an error code when the “rm -f” has no files will need to be manually updated given the new standard.
UW7-49	**OpenSSL security fixes** These security issues were addressed: ● BN_mod_exp may produce incorrect results on x86_64 **(CVE-2015-3193)** ● Certificate verify crash with missing PSS parameter **CVE-2015-3194** ● X509_ATTRIBUTE memory leak **CVE-2015-3195** ● Anon DH ServerKeyExchange with 0 p parameter **CVE-2015-1794**
UW7-50	**OpenSSH prints duplicate MOTD** The PrintMotd line in /etc/ssh/sshd_config is now set to no to keep from displaying /etc/motd twice on login.
UW7-51	**apache/docview broken** Fixed some long-standing bugs that prevented Apache, and therefore Docview, from starting up. A syntax error in /usr/lib/apache/conf/httpd.conf and an obsolete link reference were the cause of this problem. Those items have been fixed in UnixWare7D2M1.
UW7-52	**OpenSSH 7.1p1 ignores /etc/hosts** UnixWare7D2M1’s Openssh 7.3p1e release corrects a bug in the earlier 7.1p1 release which regressed earlier fixes. Now DNS resolution looks at the /etc/hosts file after checking the results of the /etc/resolv.conf file.

ID	Description
UW7-54	**SCO UnixWare 7 Definitive D2M0 media did not include the UDK** For fresh installs, a free UDK license and the UDK set is automatically installed during ISL. For upgrade installations on systems without a UDK license, a free license and the UDK set is automatically installed. Users are neither prompted whether they want to install the UDK nor for granular UDK install options (the recommended defaults are used). The exception for both ISL and upgrades is if there is less than 90 MB of free space in / when the install tries to install the UDK. Since the UDK install consumes about 51 MB, Xinuos does not install the UDK if the 90 MB threshold is not reached. Note that for both ISL and upgrades, additional non-UDK packages are installed after the UDK. For more information on the UDK packages selected for automatic installation, see item in the Addendum's headed Installing Optional Packages Later/Reinstalling a Package.
UW7-57	**openssh 7.1p1 on D2M0 does not include some openssh 6.6.1p1 configuration file changes** Previous web-post openssh updates to /etc/ssh/ssh_config and /etc/ssh/sshd_config were mistakenly dropped in D2M0. They are included in UnixWare7D2M1.

UW7-59	**Apache error with perl 5.8.8a and ssl**
	D2M0 ISL installed a modified Apache configuration file to work around an openssl bug. The new openssl package fixes the underlying bug. For those who installed SCO UnixWare 7 Definitive D2M0 via an ISL (not upgrade) installation and requires SSL, edit the */usr/lib/apache/bin/apachectl* file as follows:
	• Remove the following two lines:
	`if $HTTPD ; then`
	`  echo "$0 $ARG: httpd started (disabling insecure SSL)"`
	• Add the following two lines:
	`if $HTTPD -DSSL; then`
	`  echo "$0 $ARG: httpd started"`

ID	Description
UW7-65	**bootpd did not use ARP to properly resolve IP/MAC addresses** /usr/sbin/in.bootpd was updated to use ARP tables to resolve connections with local printers.
UW7-68	**UW7 Definitive - apache dumps core and won't start** Missing **openssl** links in UnixWare7D1M0 and UnixWare7D2M0 caused Apache not to start. The UnixWare7D2M1 **openssl** package restores these links. This allows Apache to start.
UW7-69	**Outdated /etc/inet/named.d/db.cache pointed to an old root server IPs** A current /etc/inet/db.cache file is provided.
UW7-70	**OpenSSH Protocol 2 connection hangs** Openssh now uses Protocol 2 and caused some SSH hangs when pasting large amounts of text into a terminal session. UnixWare7D2M1 openssh modifies a parameter to prevent these hangs.
UW7-74	**Packaging tools incorrectly processes sets with packages having long names** The pkginfo command was updated to display the packages in a set even when some of the packages have “short” package names (abbreviation) greater than nine characters. pkgtrans was also updated to fix an off-by-one coding bug.
UW7-76 534759:2 529823:2	**Print queue is deleted after system was rebooted** Print jobs submitted remotely were sometimes deleted from the print queue following reboot of the system hosting the printer. This problem has been fixed. Also fixed a bug that allows printing of bsd data type in addition to s5.

ID	Description
UW7-99	**Cdrtools and other packages not installed by default** To enable SCO UnixWare 7 Definitive functionality, now that hard disks are larger than when SCO UnixWare 7.1.4 first shipped, several new and previously optional packages are now required. In addition to the packages that were previously required in D2M0, these packages are automatically installed during ISL and by install.sh on upgrade to UnixWare7D2M1: DB OPENLDAP RSYNC SYSINFO PATCHCK ND NICS ZLIB OPENSSL SASL SENDMAIL XZ READLINE BASH GZIP UW7VCONF BZIP2 ZIP UNZIP XINUOSLIBICONV XINUOSREADLINE XINUOSLIBXML2 XINUOSBIND CDRTOOLS IPF PERL PERLMODS See the Package Version Information section to see all packages that are now required.

Configuration Notes

Please read the following notes and recommendations before you begin installing the Update CD on a prior release of SCO UnixWare 7.1.4 or SCO UnixWare 7 Definitive. If you are installing optional software on a newly installed SCO UnixWare 7 Definitive 2018 system, you can safely skip this section.

Removing the Update

Removing the SCO UnixWare 7 Definitive 2018 Update **is not supported**.

Using the New Xinuos* Packages

To use the new Xinuos* packages after the upgrade:

1. To access commands in the new Xinuos* packages, add */opt/xinuos/bin* and */opt/xinuos/sbin* to your PATH as appropriate for your system.
2. Add */opt/xinuos/man* to the MANPATH variable in the */etc/default/man* file.

Configuring a DNS Server to use Xinuosbind

Setting up a DNS Name Server using the new **Xinuosbind** package **(/opt/xinuos/…** files) is the same as setting up a DNS Name Server using the old Bind plus these two changes:

1. Edit the /etc/inet/named.options file and change **ON_BOOT=no** to **ON_BOOT=yes**.
2. Edit the /etc/inet/config file and comment out the line that begins 5:/usr/sbin/in.named…

Reverse these two changes if you later decide to return to the older Bind.

OpenSSH Configuration Notes

OpenSSH Configuration Files

SCO UnixWare 7 Definitive 2018 delivers new, improved SSH configuration files */etc/ssh/ssh_config* and */etc/ssh/sshd_config*. The new files are installed via ISL and upgrades if you are using the prior version's default values. However, per file, if the file was updated after installation, then your customized configuration file is retained. The new versions are available on your system in the */etc/ssh/7.3p1* directory.

WARNING: *It is critical to update these files prior to rebooting your system after the upgrade. Otherwise you may not be able to ssh into the server.*

After installation please integrate your changes with the new UnixWare7D2M1 file.

OpenSSH Improvements

SCO UnixWare 7 Definitive 2018 upgrades openssh to version 7.3p1e. In addition to the features and fixes provided version 6.2p1 (new in SCO UnixWare 7.1.4+) and 7.1p1 (new in SCO UnixWare 7 Definitive 2018), the new version 7.3p1e provides the following enhancements:

- OpenSSH 6.9 and later changed its default key fingerprint from md5 to sha256. Since most of the machines connecting will be older systems with only md5 fingerprint hash, Xinuos now default back to md5 to enhance the security of a first-time connection.
- **sshd_config** is changed to:
  - set PermitRootLogin to yes (always questionable but it follows the principle of least surprise)
  - Set PrintMotd and PrintLastLog to no for proper functioning on SCO UnixWare.
  - Add an example in sshd_config to work around firewalls dropping connections.
- Provide a work-around for users that do not have properly configured DNS.

- Add support for TCP wrappers.
- Fix to keep terminal sessions from locking when large amounts of text are pasted.
- Additional bug fixes are as described in SCO UnixWare 7 Definitive 2018 Fixes.

For this release:

- The ssh server has been compiled with only SSH2 support. The ssh client supports SSH1 and SSH2.
- **/usr/bin/slogin** was removed. Future upstream versions will remove insecure ciphers.

db, OpenLDAP, Samba, and Perl Upgrade Notes

Enabling Samba and OpenLDP

Samba and OpenLDAP ship in a disabled state by default. The SWAT interface on port 901 will still function and can start and configure the samba daemons; however, they will not start on boot.

To enable Samba and OpenLDAP to start on boot, run:

```
# /etc/init.d/samba enable
# /etc/init.d/openldap enable
```

***NOTE**: It is strongly advised that you ensure these services are properly configured before attempting to enable or start them.*

If you decide to use samba it is recommended that you first **pkgrm netbios**.

OpenLDAP Upgrade Notes

***WARNING:** Upgrading OpenLDAP from version 2.1.22-01 or earlier to version 2.3.27 or later will result in any existing OpenLDAP database data no longer being accessible. If you are running OpenLDAP version 2.1.22-01 or earlier and are upgrading to the latest version with this release, the database should be backed up before the upgrade and then restored following the upgrade.*

The following procedure can be used to backup an existing OpenLDAP database:

1. Log in as *root*.
2. Stop the slapd daemon, if running, to ensure a consistent backup:

   ```
   # kill `ps -e | grep slapd | awk '{print $1}'`
   ```

3. Create an *.ldif backup file:

   ```
   # slapcat -l /var/openldap-data/openldap.ldif
   ```

After the OpenLDAP upgrade, the OpenLDAP database backup can be restored using the following procedure:

1. Log in as root.
2. Restore configuration file changes.

***NOTE**: As part of the upgrade process, the OpenLDAP configuration and schema files will be overwritten by the new default files, requiring that any changes be manually remade to `/etc/openldap/*.conf` and `/etc/openldap/schema/*.schema`. The previous versions of these files are saved with the suffix `.pre2.3.27`:*

```
# ls -1 /etc/openldap
DB_CONFIG.example
ldap.conf
ldap.conf.default
ldap.conf.pre2.3.27
schema
slapd.conf
slapd.conf.default
slapd.conf.pre2.3.27
# ls -1 /etc/openldap/schema
README
corba.schema
corba.schema.default
corba.schema.pre2.3.27
```

3. Create an empty database directory:

```
    # cd /var
# mv openldap-data openldap-data.bak
# mkdir openldap-data
# chmod 700 openldap-data
```

4. Restore the ldif backup file:

```
# slapadd -l /var/openldap-data.bak/openldap.ldif
```

5. A warning will display, although it doesn't affect the restoration of the database:

```
bdb_db_open: Warning - No DB_CONFIG file found in directory
/var/openldap-data: (2)
```

***NOTE:** Expect poor performance for suffix dc=my-domain,dc=com.*

DB_CONFIG.example can be used to create `/var/openldap-data/DB_CONFIG`, to avoid warnings as with the **slapadd** command above. See `/usr/share/db/doc/index.html` for more information.

Samba Configuration

Installing the new version of the **samba** package automatically copies the existing Samba configuration (if one exists) from the previous release's `/usr/lib/samba/lib/smb.conf` and `/usr/lib/samba/private/*` files. The copied files are under `/etc/samba`. For your convenience, symlinks for the binaries and the `smb.conf` file are left in the old `/usr/lib/samba` locations.

However, if your prior configuration specified any alternate or additional configuration files (e.g., a *usermap* file), they need to be copied separately.

***NOTE**:*	*If the new Samba version is removed then your current configuration will not be restored to the previous `/usr/lib/samba/lib` location. When downgrading, administrators are advised to backup all configuration files before removing the new **samba** package.*

Samba Squid vs. `/usr/bin/ntlm_auth` Utility

SCO UnixWare 7 Definitive 2018 provides both the Samba package **/usr/bin/ntlm_auth** and the Squid package **/usr/bin/ntlm_auth** utilities. If configuring Squid for NTLM authentication, Xinuos recommends using the Samba package **/usr/bin/ntlm_auth** utility, and thus Samba should be installed (or reinstalled) after Squid. Note that this will be automatically be the case when using the **install.sh** default installation.

Samba Shares

There was a feature added by the Samba team that automatically disables any shares that do not have an explicitly set path. Thus, if you initially define any shares through the SWAT interface, they automatically get an extra available = no parameter added to their service definition. Once the share is defined you may remove the available = no attribute either manually from the smb.conf file, or through SWAT by toggling the setting under the service definition from the **SHARES** tab. This will then enable your service.

Samba/OpenLdap/Heimdal Conventions

Starting with the SCO UnixWare 7.1.4 MP3 Samba Supplement, some of SCO UnixWare's previous conventions were altered. The following changes were made:

- Samba is disabled by default after it is installed and must be manually enabled via /etc/init.d/samba enable
- Samba start-up script has been relocated from: `/etc/dinit.d/S99samba` to /etc/rc2.d/S98samba.
- Samba configuration files are now located in `/etc/samba`.

- Samba daemon binaries are now located in `/usr/sbin`.
- Samba administration and user binaries are located in `/usr/bin`.
- Samba logs are located in `/var/log/samba`.
- Samba is now compiled with the LDAP and ADS options.
- Starting with SCO UnixWare 7.1.4 MP4, Samba is now compiled with Cups support enabled. (The SCO UnixWare 7.1.4 MP3 Samba Supplement did not have Samba Cups support enabled.)
- OpenLDAP binaries (**slapd** and **slurpd**) are now located in `/usr/sbin`. The old `/usr/libexec` locations are symlinked for compatibility.
- Heimdal binaries are located in subdirectories of `/usr/lib/heimdal`. The **kinit** and **klist** binaries are symlinked in `/usr/bin`.

db/openldap/samba Libraries

If you are upgrading from earlier versions of the **db**, **openldap**, or **samba** packages, then please note that the earlier libraries remain on your system. This is to enable applications that dynamically linked with these libraries to continue to function. However, to avoid any security issues with the earlier version's library you may want to remove these old libraries:

```
db:
/usr/lib/libdb-4.1.a
    /usr/lib/libdb-4.1.so
    /usr/lib/libdb-4.1.so.0
    /usr/lib/libdb-4.1.so.0.0.0
openldap:
    /usr/lib/liblber.so.2.0.122
    /usr/lib/libldap.so.2
    /usr/lib/libldap.so.2.0.122
    /usr/lib/libldap_r.so.2
    /usr/lib/libldap_r.so.2.0.122
samba:
    /usr/lib/samba/lib/charset/CP437.so
    /usr/lib/samba/lib/charset/CP850.so
    /usr/lib/samba/lib/libsmbclient.a
    /usr/lib/samba/lib/libsmbclient.so
    /usr/lib/samba/lib/libsmbclient.so.0
    /usr/lib/samba/lib/libsmbclient.so.0.1
    /usr/lib/samba/lib/vfs/audit.so
    /usr/lib/samba/lib/vfs/cap.so
    /usr/lib/samba/lib/vfs/default_quota.so
    /usr/lib/samba/lib/vfs/expand_msdfs.so
    /usr/lib/samba/lib/vfs/extd_audit.so
```

```
/usr/lib/samba/lib/vfs/fake_perms.so
/usr/lib/samba/lib/vfs/full_audit.so
/usr/lib/samba/lib/vfs/netatalk.so
/usr/lib/samba/lib/vfs/readonly.so
/usr/lib/samba/lib/vfs/recycle.so
/usr/lib/samba/lib/vfs/shadow_copy.so
```

- To remove an old library:

```
# /usr/sbin/removef <package_name> <filename>
# rm <filename>
```

- After removing all the old libraries for package then enter:

```
# /usr/sbin/removef -f <package_name>
```

- For example:

```
# /usr/sbin/removef db /usr/lib/libdb-4.1.a
# /usr/sbin/removef db /usr/lib/libdb-4.1.so
# /usr/sbin/removef db /usr/lib/libdb-4.1.so.0
# /usr/sbin/removef db /usr/lib/libdb-4.1.so.0.0.0
# rm /usr/lib/libdb-4.1.a
# rm /usr/lib/libdb-4.1.so
# rm /usr/lib/libdb-4.1.so.0
# rm /usr/lib/libdb-4.1.so.0.0.0
# /usr/sbin/removef -f db
```

perl/perlmods Libraries

If you are upgrading **perl** and/or **perlmods** from the previous SCO UnixWare version (5.8.3) then please note:

- If you installed your own individual **perl** modules for **perl** 5.8.3
- You need to reinstall them for the new version of **perl** 5.8.8. This is because the **perl** modules are placed in directories named for the installed **perl** version number.
- Various 5.8.3 files and directories remain on your system.
- This is to enable applications that rely on that specific version of **perl** or **perlmods** to continue to function. However, to avoid any security issues, you may want to remove these files. To do so, log in as *root* and run this procedure:

```
cd /var/sadm/pkg/perlmods/install
chmod 744 cleanup.sh
./cleanup.sh > cleanup.sh.out 2>&1
chmod 644 cleanup.sh
cd /var/sadm/pkg/perl/install
chmod 744 cleanup.sh
```

```
./cleanup.sh > cleanup.sh.out 2>&1
chmod 644 cleanup.sh
```

Sendmail Configuration Notes

Manual Sendmail Upgrade Steps

During the sendmail upgrade, any "smarter host" setting currently configured for sendmail will be preserved and included in the new configuration, but any additional nondefault configuration settings (generally rare) will need to be redone by hand using the **/etc/mail/manage_sendmail** command.

The old */etc/sendmail.cf* configuration file is renamed */etc/sendmail.cf.save* and can be checked for previous settings. An */etc/sendmail.cf* symlink points to the new */etc/mail/sendmail.cf* configuration file used by the updated **sendmail**. If you had made **sendmail** configuration setting changes (other than "smarter host") through "scoadmin mail", you should note these settings before updating to the new sendmail. Once updated, "scoadmin mail" invokes **/etc/mail/manage_sendmail**, not the old interface.

Additional Sendmail Upgrade Notes

SCO UnixWare 7 Definitive 2018, like previous releases since MP4, includes **sendmail** 8.13.8 and provides **sendmail** as part of a separate self-updating package, also named **sendmail**. Prior to SCO UnixWare 7.1.4 MP4, **sendmail** was part of the **base** system package.

Delivery of **sendmail** in a self-updating package carries two implications going forward:

- If in the future you remove the **sendmail** package, the system will restore the version of **sendmail** that was delivered with the 7.1.4 base system, and will restore the configuration files that were in use at the time the new **sendmail** package was first installed.
- The new **sendmail** package has dependencies on several other packages, namely **openssl**, **db**, **openldap**, and **sasl**, so those packages will be installed by default.

It is possible to deselect installation of the new **sendmail** package, but the old **sendmail** has not been tested with SCO UnixWare 7 Definitive 2018, and is not supported going forward.

The new **sendmail** daemon is automatically started during installation of the **sendmail** package unless your system has SCOoffice installed.

Administrators who used (or plan to use) more advanced **sendmail** configuration options should read the documentation available under http://www.sendmail.org/doc.

Minimal Cyrus-SASL Functionality Provided

SCO UnixWare 7 Definitive 2018 provides a Cyrus-Sasl (**sasl**) package delivering a subset of Cyrus-SASL version 2.1.22. The primary purpose of this package is to enable Sendmail 8.13.8. Very little additional Cyrus-Sasl functionality is provided. For example, the *saslauthd* daemon is built without PAM support and is not started up on boot.

PostgreSQL Upgrade Notes

PostgreSQL 8.2.6 is included on the Update CD. This release of the PostgreSQL Database Server includes many performance and security enhancements. Systems running a prior release of PostgreSQL are encouraged to upgrade in order to take advantage of these features.

However, to provide these features, PostgreSQL 8.2.6 includes a change in internal database format and is a major upgrade from PostgreSQL 7.x and PostgreSQL 8.1.3. For this reason, you must perform a dump and subsequent restore of all PostgreSQL 7.x/8.1.3 databases that you want to preserve across the upgrade. Detailed instructions on this process are provided below.

To preserve data from a PostgreSQL 7.x or PostgreSQL 8.1.3 database and restore the data into a PostgreSQL 8.2.6 database on SCO UnixWare 7, follow this procedure:

1. On the system running PostgreSQL 7.x/8.1.3, log in as the PostgreSQL super-user:

   ```
   # su - postgres
   ```

2. Perform a dump of the databases you wish to preserve using either `pg_dumpall(1)` or `pg_dump(1)`. Backing up all databases using **pg_dumpall** is the recommended procedure.

   For example, to preserve all databases in a cluster, you could enter the shell command:

   ```
   $ pg_dumpall > exampledb.out
   ```

   To preserve only the database `/exampledb/`, you could enter the shell command:

   ```
   $ pg_dump -F c -f exampledb.out exampledb
   ```

3. Move the existing default data directory to your PostgreSQL backups directory:

   ```
   $ mkdir backups
   $ mv data backups/data-7.4.7
   ```

or

```
$ mkdir backups
$ mv data backups/data-8.1.3
```

4. Exit the PostgreSQL super-user account
5. Install PostgreSQL from the SCO UnixWare 7.1.4+ CD by following the instructions in the Installing Optional Packages Later/Reinstalling a Package section.
6. Log in as the PostgreSQL super-user:

   ```
   # su - postgres
   ```

7. Restore the preserved databases from any previous dumps, as in this example for the database you backed up in step 2.:

   ```
   $ psql -f exampledb.out postgres
   ```

8. Reboot the system.

Detailed documentation on backing up and restoring PostgreSQL databases is available both in the online documentation:

- Migration Between Releases: http://osr600doc.sco.com/en/DB_postgresql/migration.html
- Backup and Restore: http://osr600doc.sco.com/en/DB_postgresql/backup.html

  and, online at the PostgreSQL web site:

  http://www.postgresql.org/docs/8.2/static/migration.html

  http://www.postgresql.org/docs/8.2/static/backup.html

Hardware Configuration Notes

PC Card Prerequisites

Before you can configure a PC Card NIC in your laptop, the **pcic** driver must be configured using the following steps:

1. Power down the laptop.
2. Insert your PC Card NIC into a slot.
3. Power on the system. On Toshiba laptops, enter the system BIOS as the system comes up and ensure that the following parameter is set as shown:

   ```
   Controller Mode = Cardbus/16-bit
   ```

4. Log in as root.
5. Run the Device Configuration Utility: 'dcu'.
6. Select 'Software Device Drivers'.
7. Select 'Miscellaneous'.
8. Page down to the 'pcic' driver:
   - If the **pcic** driver is already marked by an asterisk (*), then the driver is already configured. Exit the **dcu** without saving your changes and skip to step 17 below.
   - Otherwise, select the 'pcic' driver using the **space bar**.
9. Press **F5** (New).
10. Set the following values:

```
Unit:   0
IPL:    0
ITYPE:  0
IRQ:    0
IOStart:0
IOEnd:  0
MemStart:   This field is automatically set by the pcic driver.
            Don't change this setting.
MemEnd:     This field is automatically set by the pcic driver.
            Don't change this setting.
DMA:    -1
BindCPU:    Leave this field blank.
```

11. Press **F10** (Apply and Return).
12. Press **Enter** (Return).
13. Select Return to DCU Main Menu.
14. Select Apply Changes and Exit DCU.
15. At the root prompt, enter the following three commands:

```
# rm /etc/conf/pack.d/pcic/_drv.o
# /etc/conf/bin/idbuild -B
# init 6
```

16. When the system is booting up, you should see a message indicating that the card was detected following the copyright screen. For example:

```
EG: Intel Pro/100 Cardbus PC Card detected in socket 0
```

17. Run the Network Configuration Manager (scoadmin network or netcfg) to configure your NIC.
18. Exit the Network Configuration Manager and reboot:

```
# init 6
```

modjk1/modjk Upgrade Notes

If you previously installed the **modjk1** ("mod_jk2 for Apache 1") package from the SCO UnixWare 7.1.4 MP1, MP2, or MP3 CD, then **modjk** replaces **modjk1** as of MP4. If you select to install **modjk** and **modjk1** is still installed, then `install.sh` prompts whether to remove **modjk1**. Removal of **modjk1** does not undo changes made to the `httpd.conf` file as part of the installation of **modjk1**. As a result,

```
# /etc/apache startssl
```

will not succeed and applications dependent on that functionality may not operate correctly.

If you previously installed **modjk1** and are upgrading to **modjk** for the first time (strongly recommended if you have not done this before), then before you upgrade, edit the file `/usr/lib/apache/conf/httpd.conf` and remove these two lines:

```
LoadModule jk2_module libexec/libmod_jk2.so
AddModule mod_jk2.c
```

OpenServer Kernel Personality (OKP)

(ID: 531761)

If you are running the OpenServer Kernel Personality (OKP), you may see error messages like the following after installing the Update:

```
UX:SCO UnixWare: ERROR: Unable to change root to /SCO UnixWare: Invalid argument
```

This is caused by the default setting of the new CHROOT_SECURITY parameter. For OKP to function properly, you must set CHROOT_SECURITY to "0" and reboot the system.

SCO Help

If your system was originally installed with a release prior to SCO UnixWare 7.1.3 and has the obsolete **scohelp** package installed, Xinuos recommend removing **scohelp** before you add the Update. This will ensure the full benefit of the security enhancements in the Update (changes to numerous file and directory permissions). To see if **scohelp** is installed, enter the following shell command:

```
# pkginfo scohelp
```

To remove the package, enter the following two commands as *root*:

```
# /etc/scohelphttp stop
# pkgrm scohelp
```

Older Prerequisite Packages Included

The Update CD includes a number of packages from the SCO UnixWare 7.1.4 media: **inet**, **urwfonts**, **glib**, **gtk**, and **libIDL**. These packages are unchanged from the original SCO UnixWare 7.1.4 release and are provided here as a convenience. These five packages are prerequisites for some of the packages provided in SCO UnixWare 7 Definitive 2018. If you do not have these packages installed on your system, and need them to install SCO UnixWare 7 Definitive 2018 packages that you select, then the **install.sh** script will install these packages for you.

More Information

If you have questions regarding this supplement, or the product on which it is installed, contact your software supplier or support representative.

Known Problems

Running X Server/Desktop Corrupts Root Filesystem on a few Servers

(ID: UW7-100)

Xinuos has disabled the desktop (**scologin**) because it can cause corruption on some systems including the IBM ThinkServer TS440. The filesystem corruption, if it occurs, requires a reinstallation. This issue will be fixed in a future release.

zlib pkgchk Error+

(ID: UW7-90)

After performing a SCO UnixWare 7 Definitive 2018 ISL install, sometimes running **pkgchk -n zlib** yields these errors:

```
UX:pkgchk: ERROR: /usr/local/lib/libz.so
 pathname does not exist
UX:pkgchk: ERROR: /usr/local/lib/libz.so.1
 pathname does not exist
```

```
UX:pkgchk: ERROR: /usr/local/lib/libz.so.1.2.1
 pathname does not exist
```

To fix re-run the zlib preinstall script as follows:

```
/sbin/sh/var/sadm/pkg/zlib/install/preinstall
```

Error Message in lpsched Log

(ID: UW7-83)

After performing a SCO UnixWare 7 Definitive 2018 ISL install, this message appears in the */var/lp/logs/lpsched* log file:

```
UX:lpsched: ERROR: Can't create public message device (Invalid argument).
```

This error is caused by initializing the print subsystem too early in the initial set-up process. This initial error is benign and should be ignored.

Windows SSH Connections

If you are using an old insecure windows SSH client, you may have trouble connecting to SCO UnixWare 7 Definitive 2018 **openssh** version.

eeE8 Checksum Warning

(ID: 530830)

After installing the updated **nd** package, you may see the following warning message on every boot:

```
WARNING: eeE8: eeE8ValidateChecksum: EEPROM checksum validation failed (slot5,port1)
```

This warning comes from the eeE8 driver version 3.0.2 for the following NIC:

```
Vendor ID 0x8086 (INTEL)
Device ID 0x1229
Subsystem Vendor ID 0x8086
Subsystem ID 0x9
```

This message can be safely ignored.

Reconfiguring the PC Card Systems

Due to changes in the PC Card subsystem, if you have a Network Interface Card (NIC) configured in your laptop prior to installing this Update, it may not function after the Update is installed. To enable it, you must run the Network Configuration Manager (**scoadmin network** or **netcfg**), remove the NIC, and then add it again.

Openldap Fails if Perl not Updated from Update CD

The latest version of openldap, 2.3.27-01, does not work in this release as it depends on 'libperl.so.808', which is provided by the perl package present in upgrade CD. So, to use openldap, first update the perl package from update CD.

Sendmail Startup Delay When NIC is Down

Delays up to 80 seconds long in sendmail startup have been seen on systems in which a configured NIC was disconnected or otherwise down.

Openldap Fails If Samba Not Installed

(ID: 534864:2)

The **openldap** package ships with a line in its configuration file `/etc/openldap/slapd.conf` which references a schema file installed by the **samba** package. If **samba** is not installed, then the referenced file isn't present, and the **openldap** *slapd* daemon will fail to start, and will instead generate error messages similar to the following in the system log `/var/adm/syslog`:

```
Apr 9 17:36:25 stb022 slapd[17854]: could not stat config file
    "/etc/openldap/schema/samba.schema": No such file or directory (2)
Apr 9 17:36:25 stb022 slapd[17854]: slapd destroy: freeing system resources.
Apr 9 17:36:25 stb022 slapd[17854]: slapd stopped.
```

To fix this problem, either:

- Install the **samba** package, or
- Remove (or comment out) the following line from the first section of `/etc/openldap/slapd.conf`:

```
include     /etc/openldap/schema/samba.schema
```

Heimdal Errors on Startup

(ID: 534876:2)

The **heimdal** package may, at boot, generate error messages on the console and in the system log */var/adm/syslog* similar to the following:

```
Apr 29 18:20:38 stb020 kadmind[18794]: bind: /var/heimdal/kdc.conf:0: cannot open
file
```

This occurs because **heimdal** ships in an enabled state by default and is starting without a proper configuration. To fix this problem, either:

- configure **heimdal** properly, or
- run the following command to prevent it from starting up:

```
/etc/init.d/kdc disable
```

Mplayer Does Not Zoom Video When Resizing Window

(ID: 534416:1)

To fix this problem, append this line to the `$HOME/.mplayer/config` configuration file:

```
zoom="*1"
```

PAM Modules Conflicting with OpenLDAP/Samba Package Removal

The **openldap** and **samba** packages contain extra PAM modules. If you have configured any PAM services to use modules provided by any of these packages, and then uninstall the package(s), any service configured to use the uninstalled module(s) will fail. This will prevent that service from successfully logging in.

If local console logins are affected, **pkgrm** will abort.

Each package that provides extra PAM modules attempts to detect this scenario. If detected, you are offered the option to abort the package removal. If you do not abort, a warning is displayed at the conclusion of the package removal.

If the above warnings are ignored, and you lose the ability to log in via any remote service, you will need to first locally reboot your system. Then enter the following commands into the bootloader to bring your system up in single-user mode:

```
INITSTATE=s
b
```

Once booted in single-user mode you need to reconfigure your PAM service(s), and remove the offending module(s) from the configuration file(s).

Addendum – SCO UnixWare 7 Definitive 2018 Packaging

SCO UnixWare 7 Definitive 2018 is the latest evolution of the SCO UnixWare 7 product line. It is a cumulative upgrade of all prior SCO UnixWare releases. From a packaging perspective, this release includes the SCO UnixWare 7.1.4 core operating system, the SCO UnixWare 7.1.4 update package (**update714**), the SCO UnixWare 7.1.4 UDK, the SCO UnixWare 7 Definitive Update Set (**uw714sd2m1**), and many updated SCO UnixWare 7 Definitive packages. ISL (for new installations) and **install.sh** (for upgrade installations) install all required packages for a robust installation. For both ISL and upgrades, **install.sh** also provide choices for additional optional packages. This addendum provides details about the SCO UnixWare 7 Definitive 2018 packages.

Release Identification

This section describes how to identify the installation path used to arrive at SCO UnixWare 7 Definitive 2018:

- Confirm that the system is a SCO UnixWare 7.1.4 or later system:

  ```
  pkginfo | grep update714
  ```

- On a SCO UnixWare 7.1.4 or later system, run:

  ```
  pkginfo | grep uw714
  ```

- A system had prior SCO UnixWare 7.1.4 MPs installed if it contains packages whose names were of the form uw714m# where # is 1 (MP1), 2 (MP2), 3 (MP3), or 4 (MP4).

- A system was a SCO UnixWare 7.1.4+ appliance, Version 1, or Version 2 system, or a SCO UnixWare 7 Definitive (UnixWare7D1M0 or UnixWare7D2M0) system if it contains the uw714plus package:

  ```
  pkginfo | grep uw714plus
  ```

- To determine which was the last prior SCO UnixWare 7.1.4+ or SCO UnixWare 7 Definitive release, run:

  ```
  pkgparam ptf9100 VERSION
  ```

  - If **d** is returned then the system was upgraded from SCO UnixWare 7.1.4, UnixWare7D1M0 or UnixWare7D2M0.
  - If **c** is returned then the system was upgraded from SCO UnixWare 7.1.4+ Version 2.

  Otherwise the system was a SCO UnixWare 7.1.4+ appliance or Version 1 release.

- Starting with SCO UnixWare 7 Definitive 2018 and for later versions, the upgrade path during the system upgrade path can be determined by:

  ```
  pkginfo | grep uw714pd
  ```

  This will show all uw714pdMmN updates where installed, where M is the release number (2, 3, and so on) and N is the maintenance level for that release (0, 1, 2, and so on).

Superseded SCO UnixWare 7.1.4 Supplements

This Update supersedes and obsoletes:

- These prior maintenance packages, updates, and patches:

uw714mp1 uw714m1	SCO UnixWare 7.1.4 Maintenance Pack 1 Set SCO UnixWare 7.1.4 Maintenance Pack 1 Package
uw714mp2 uw714m2	SCO UnixWare 7.1.4 Maintenance Pack 2 Set SCO UnixWare 7.1.4 Maintenance Pack 2 Package
uw714mp3 uw714m3	SCO UnixWare 7.1.4 Maintenance Pack 3 Set SCO UnixWare 7.1.4 Maintenance Pack 3 Package
uw714mp4 uw714m4	SCO UnixWare 7.1.4 Maintenance Pack 4 Set SCO UnixWare 7.1.4 Maintenance Pack 4 Package
PlusSet uw714plus	SCO UnixWare 7.1.4+ Update Set SCO UnixWare 7.1.4+ Update Package
ptf9050	SCO UnixWare 7.1.4 Licensing Supplement
ptf9051	SCO UnixWare 7.1.4 Maintenance Pack 2 Supplement
ptf9052	ptf9052 - SCO UnixWare 7.1.4 Maintenance Pack 3 Supplement
ptf9053	ptf9053 - SCO UnixWare Australia Timezone Update
ptf9054	ptf9054 - SCO UnixWare 7.1.4 Processor Licensing Update

ptf9055	ptf9055 - SCO UnixWare 7.1.4 Maintenance Pack 4 Supplement
ptf9056	ptf9056 – Packaging Tools Long Name Support
ptf9100	ptf9100 – SCO UnixWare 7 Definitive Supplement

- These packages and sets do not need to be removed prior to installing **uw714sd2m1**; the **uw714sd2m1** installation locks down these packages so that they are no longer removable.
  - The SCO UnixWare 7.1.4 MP3 USB Supplement.
  - The SCO UnixWare 7.1.4 MP3 Samba Supplement.

  SCO UnixWare 7 Definitive 2018 also locks down additional escalation and security patches issued prior to the completion of SCO UnixWare 7 Definitive 2018.

Package Version Information

The upgrade to SCO UnixWare 7 Definitive 2018 consists of the core **uw714sd2m1** set, various new SCO UnixWare 7 Definitive packages (including open source updates), and optional HBA updates. The following tables provides version information for these packages with the following legend:

- A green version number in the table indicates when a new version of a package was introduced.
- The **R/O** column shows which packages are [**R**]equired and which are [**O**]ptional.
- Some packages are only intended for the [**V**]MWare platform; those are marked by **VR** for [**R**]equired on that platform and **VO** for [**O**]ptional on that platform.
- **RP** means the update package is [**R**]equired if any of its [**P**]rerequisite packages is installed.

The uw714sd2m1 set installs these nine packages:

	Package Name and Description	R/O	UW714	MP4	post MP4	UW7D D2M0	UW7D D2M1
1	UW714PD2M1 SCO UNIXWARE 7 DEFINITIVE UPDATE PACKAGE	R					7.1.4
2	UW714D SCO UNIXWARE 7 DEFINITIVE OPEN SOURCE EXTENSION PACKAGE	R					7.1.4
3	LIBC SCO UNIXWARE RUNTIME C++ LIBRARY	R	8.0.2	8.0.2d		8.0.2d	8.02d
4	LIBC RUNTIME C LIBRARY	R	8.0.2	8.0.2e	8.0.2f	8.0.2f	8.02f
5	LIBM RUNTIME MATH LIBRARY	R				8.0.2b	8.0.2b
6	LIBTHREAD RUNTIME THREAD LIBRARY	R	8.0.2	8.0.2b		8.0.2c	8.02c
7	PAM PLUGGABLE AUTHENTICATION MODULES	R	New in MP1	0.77c		0.77e	0.77e
8	UDIENV UDI 1.01 RUNTIME ENVIRONMENT	R	8.0.2	8.0.2d	8.0.2e	8.0.2e	8.02e
9	USB USB 2.0 DRIVERS	R	8.0.2	8.0.2c	8.0.2e	8.0.2e	8.02e

SCO UnixWare 7 Definitive Packages

The following packages can be installed with **install.sh** after installing **uw714sd2m1**:

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
1	NICS	Network Infrastructure and Configuration Subsystem	R	8.0.2d		8.0.2e	8.02e
2	ND	Network Drivers includes bcme 5718 and vtnet support	R	8.0.2f	8.0.6i	8.0.6o	8.06o
3	LDAP	Lightweight Directory Access Protocol services	0	8.0.1a		8.0.1a	8.01a
4	LIBOSR	Runtime OpenServer Libraries	0	8.0.2a		8.0.2a	8.02a
5	UCCS	OUDK Optimizing C Compilation System	O	8.0.2d		8.0.2f	8.02f
6	UW7MPDOC	Updated Guides and Manual Pages	RP	7.1.4a		7.1.4a	7.1.4a
7	BASEX	X11R6 Base X Runtime System	R	8.0.2c		8.0.2d	8.0.2d
8	XSERVER	X11R6 X Server	O	8.0.2e		8.0.2e	8.0.2e
9	XCLIENTS	X11R6 X Clients	O	8.0.2a		8.0.2a	8.0.2a
10	XCONTRIB	X11R6 Contributed X Clients	O	8.0.2c		8.0.2c	8.0.2c
11	XDRIVERS	X11R6 Graphics Drivers	O	8.0.2b		8.0.2b	8.0.2b
12	J2JRE131	Java 2 SE 1.3.1 Runtime Environment	O	1.3.1.22		1.3.1.22	1.3.1.22
13	J2SDK131	Java 2 SE 1.3.1 Software Development Kit	O	1.3.1.22		1.3.1.22	1.3.1.22

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
14	J2PLG131	Java 2 SE 1.3.1 Java Plug-in	O	1.3.1.22		1.3.1.22	1.3.1.22
15	J2PLS131	Java 2 SE 1.3.1 Demos & Debug	O	1.3.1.22		1.3.1.22	1.3.1.22
16	J2JRE142	Java 2 SE 1.4.2 Runtime Environment	O	1.4.2.17	1.4.2.19	1.4.2.19	1.4.2.19
17	J2SDK142	Java 2 SE 1.4.2 Software Development Kit	O	1.4.2.17	1.4.2.19	1.4.2.19	1.4.2.19
18	J2PLG142	Java 2 SE 1.4.2 Java Plug-in	O	1.4.2.17	1.4.2.19	1.4.2.19	1.4.2.19
19	J2JRE150	Java 2 SE 5.0 Runtime Environment	O	1.5.0.15	1.5.0.17	1.5.0.17	1.5.0.17
20	J2SDK150	Java 2 SE 5.0 Software Development Kit	O	1.5.0.15	1.5.0.17	1.5.0.17	1.5.0.17
21	J2PLG150	Java 2 SE 5.0 Java Plug-in	O	1.5.0.15	1.5.0.17	1.5.0.17	1.5.0.17
22	PATCHCK	patchck - package management tool	R			16011203	17082201
23	SYSINFO	sysinfo build 15022701 - SCO Support	R			16011203	17082201
Open Source Packages **Package Name and Description**				**MP4**	**post MP4**	**UW7D D2M0**	**UW7D D2M1**
1	BASH	bash - GNU Bourne-Again Shell	R			4.3.30b	4.3.30b
2	BZIP2	bzip2 1.0.6 for SCO UnixWare714D	R				1.0.6a

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
3	BZIP2-DEV	bzip2 1.0.6 development bits for SCO UnixWare714D	O				1.0.6a
4	CDRTOOLS	Cdrtools A set of tools for CD/DVD Recorders	R	7.1.4 2.01.01a01		7.1.4 2.01.01a01	7.1.4 2.01.01a01
5	CUPS	Common Unix Printing System	O	1.3.3		1.3.3	1.3.3
6	CUPSDEV	Common Unix Printing System Development Environment	O	1.3.3		1.3.3	1.3.3
7	CUPSLE	Common Unix Printing System Language Extension	O	1.3.3		1.3.3	1.3.3
8	CURL	cURL	O	7.15.1		7.15.1	7.15.1
9	DB	Berkeley DB Library	R	4.4.20		4.4.20-01	4.4.20.p4-01
10	FOOMATIC	Foomatic Filters and PPDs	O	3.0.2		3.0.2	3.0.2
11	GETTXTDEV	gettxtdev - GNU gettext development	VO			0.16.1b	0.16.1b
12	GETTXT-RT	gettxt-rt - GNU gettext runtime	VR			0.16.1b	0.16.1c
13	GLIB2-DEV	glib2-dev - GIMP Portability Library for vmtools - Dev	VO			2.24.1c	2.24.1c
14	GLIB2-RT	glib2-rt - GIMP Portability Library for vmtools - RT	O			2.24.1c	2.24.1d
15	GS	ESP Ghostscript	O	7.07.1-02		7.07.1-02	7.07.1-02

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
16	GZIP	GNU file compression utilities	R	1.3.5		1.3.5	1.3.5
17	HEIMDAL	Heimdal Kerberos 5 Implementation	O	0.6.6		0.6.6	0.6.6
18	HPIJS	HP Inkjet Printer Driver	O	1.5-02		1.5-02	1.5-02
19	ICU-DEV	icu-dev - International Components for Unicode DEV	VO			3.6c	3.6c
20	ICU-RT	icu-rt - International Components for Unicode RT	VR			3.6c	3.6d
21	IPF	IP Filter	R	4.1.3a		4.1.3a	4.1.3a
22	JAVASOAP	javasoap - Apache Axis SOAP Web Services and Apache Xerces-J XML Parser		1.2		moved to tomcat pkg	
23	JPEG	JPEG Library and Utilities	O	6b		6b	6b
24	LIBDNETDV	libdnetdv - low-level networking routines - DV	O			1.11b	1.11b
25	LIBDNETRT	libdnetrt - low-level networking routines - RT	O			1.11b	1.11c
26	LIBPNG	PNG (Portable Network Graphics) Library	O	1.2.12a		1.2.12a	1.2.12a

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
27	MODJK	mod_jk Apache Tomcat Connector[1] [3]	O	1.2.25-03		1.2.25-03	1.2.25-03
28	MOZILLA	Mozilla 1.7.12	O	1.7.13a		1.7.13a	1.7.13a
29	MPLAYER	MPlayer - movie player	O	1.0		1.0	1.0
30	MySQL	MySQL multithreaded SQL database server	O	5.0.19-01		5.0.19-01	5.0.19-01
31	OPENLDAP	OpenLDAP Software Suite[2] [1]	R	2.3.27		2.3.27-01	2.3.27-01
32	OPENSLP	Open Service Location Protocol	O	1.0.6a		1.0.6a	1.0.6a
33	OPENSSH	Open Secure Shell	R	4.6p1	6.6.1plc	7.1p1	7.3p1e
34	OPENSSL	OpenSSL	R	0.9.7ia		0.9.7ia	1.0.2m
35	OPENSSLD	OpenSSL Documentation		0.9.7i		0.9.7i	Obsolete
36	OPENSSL-DEV	OpenSSL 1.0.2l development bits for SCO UnixWare714D	O				1.0.2m
37	PERL	The Perl Programming Language	R	5.8.8a		5.8.8a	5.8.8a

1 SCO UnixWare 7.1.4 MP4 provided the **modjk** package for the first time. **modjk** replaced the earlier **modjk1**, "mod_jk2 for Apache 1," package. The **modjk1** package (version 2.0.4) was introduced in SCO UnixWare 7.1.4 MP1 and provided in SCO UnixWare 7.1.4 MP2 and MP3.

2 Starting with the Samba supplement (a post SCO UnixWare 7.1.4 MP3 supplement superseded by SCO UnixWare 7.1.4 MP4) and continuing with MP4 and subsequent maintenance packs, the OpenLDAP package includes three distributions: openldap; pam_ldap-180 (also provided in MP3); and nss_ldap-257.

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
38	PERLMODS	Additional Modules for Perl	R	5.8.8		5.8.8	5.8.8
39	PGSQL	PostgreSQL Database Management System	O	8.2.6-01		8.2.6-01	8.2.6-01
40	RDLIN-DEV	GNU Readline Library Development	O			6.2	6.2
41	READLINE	GNU Readline Library Runtime	R	5.1		6.2	6.2
42	RSYNC	rsync version 3.1.2 protocol version 30 for SCO UnixWare714D	R			3.1.1	3.1.2
43	SAMBA	Samba[3] [2]	O	3.0.24-01		3.0.24-01	3.0.24-01
44	SASL	Cyrus-SASL	R	2.1.22		2.1.22-01	2.1.22-01
45	SENDMAIL	Sendmail	R	8.13.8		8.13.8	8.13.8
46	SQUID	Squid Caching Proxy Server	O	2.5 stable12		2.5 stable12	2.5 stable12
47	TIFF	TIFF Library and Utilities	O	3.7.3		3.7.3	3.7.3
48	TOMCAT	tomcat - Apache Tomcat app server for Java servlets, JSP, web services	O	4.1.31-01		4.1.31-02	4.1.31-02
49	UNZIP	unzip portable UnZip 60 for SCO UnixWare 714D	R				60a

[3] The **samba** package, as of the Samba Supplement and continuing with subsequent maintenance packs, includes the Samba and **smbldap-tools** version 0.9.2 distributions.

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
50	URIPARSER	uriparser - URI Parser Library	VR			0.7.5b	0.7.5c
51	UW7VCONF	SCO UnixWare 7.1.4+ Configuration				1.0.19	1.0.19a
52	VMTOOLS	vmtools - VMware Tools	VR			2011.04.25d	2011.04.25e
53	XINUOSBIND	BIND (Berkeley Internet Name Domain) 9.10.5-P1 for SCO UnixWare714D	R				9.10.5-P3
54	XINUOSBIND-DEV	BIND (Berkeley Internet Name Domain) 9.10.5-P1 development bits for SCO UnixWare714D	O				9.10.5-P3
55	XINUOSC-ARES	c-ares 1.13.0 for Definitive	O				1.13.0
56	XINUOSC-ARES-DEV	c-ares 1.13.0 development libs/includes/man for Definitive	O				1.13.0
57	XINUOSCURL	Curl 7.56.1 for Definitive	O				7.56.1
58	XINUOSCURL-DEV	Curl 7.56.1 development libs/includes/man for Definitive	O				7.56.1
59	XINUOSLIBICONV	GNU LIBICONV - character set conversion library 1.15 for SCO UnixWare714D	R				1.1.15a
60	XINUOSLIBICONV-DEV	GNU LIBICONV - character set conversion library 1.15	O				1.1.15a

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
		development bits for SCO UnixWare714D					
61	XINUOSLIBSSH2	libssh2 - SSH2 library 1.8.0 for Definitive	O				1.8.0
62	XINUOSLIBSSH2-DEV	libssh2 - SSH2 library 1.8.0 development libs/includes/man for Definitive	O				1.8.0
63	XINUOSLIBXML2	libxml2 2.9.4 for SCO UnixWare714D	R				2.9.4a
64	XINUOSLIBXML2-DEV	libxml2 2.9.4 development bits for SCO UnixWare714D	O				2.9.4a
65	XINUOSREADLINE	Gnu Readline library, version 7.0 for SCO UnixWare714D	R				7.0p3
66	XINUOSREADLINE-DEV	Gnu Readline library, version 7.0 development bits for SCO UnixWare714D	O				7.0p3
67	XZ	XZ Utils 5.2.3 for SCO UnixWare714D	R				5.2.3a
68	XZ-DEV	XZ Utils 5.2.3 development bits for SCO UnixWare714D	O				5.2.3a
69	ZIP	Zip 30 for SCO UnixWare714D	R				30
70	ZLIB	General Purpose Data Compression Library	R	1.2.3	1.2.5	1.2.5	1.2.11a
71	ZLIB-DEV	ZLIB DATA COMPRESSION LIBRARY	O				1.0.22la

Package Name and Description			R/O	MP4	post MP4	UW7D D2M0	UW7D D2M1
		1.2.11 development bits for SCO UnixWare714D					

NOTE: *The following packages were updated in UnixWare-D2M1 solely to enable installation paths that do not involve first upgrading to SCO UnixWare 7.1.4+:* ***gettxt.rt****,* ***glib2-rt****,* ***icu-rt****,* ***libdnetrt****,* ***uriparser****,* ***uw7vconf****, and* ***vmtools****. Also,* ***ptf9056*** *was revised to install in an ISL environment to enable the upgrade to SCO UnixWare 7 Definitive 2018.*

HBA Packages (install separately) Package Name and Description			R/O	MP4	Post MP4	UW7D D2M0	UW7D D2M1
1	AACRAID	aacraid - Adaptec AACRAID Family PCI SCSI IHV HBA	O	8.0.3		8.0.3	8.0.3
2	ADP94XX	adp94xx - Adaptec SAS HostRaid HBA	O	1.4		1.4	1.4
3	AHCI	ahci - AHCI HBA Driver	O	1.2		1.2.1	2.0
4	IDE	ide - Generic IDE/ATAPI Driver	O	7.1.4g	7.1.4h	7.1.4j	7.1.4j
5	MEGA	mega - LSI Logic MegaRAID HBA	O	8.0.3b		8.0.3b	8.0.3b
6	MEGASAS	megasas - LSI Logic MegaRAID SAS HBA	O	1.1		1.1 2013.11.05	1.2 2017.04.04
7	MPT	mpt - LSI Logic MPT IHV HBA	O	8.1.0		8.1.0	8.1.0
8	MPT2	mpt2- LSI MPT2 SAS HBA	O			2014.06.18	2017.06.11

Installing Optional Packages Later/Reinstalling a Package

ISL and the **install.sh** script install every required and normally every optional package you want. Occasionally you may later decide you want to install an optional package that was not selected when installing/upgrading to SCO UnixWare 7 Definitive 2018. Or, in rare cases, you may need to reinstall a corrupted package.

In such cases follow this procedure to locate/install the desired package.

1. Use **install.sh** by following the *Upgrading from an Earlier Release and Installing Optional Packages* procedure in the *Getting Started Guide* to install any package in the DVD */images* directory. These packages are:

BASEX	BASH	BZIP2
BZIP2-DEV	CDRTOOLS	CUPS
CUPSDEV	CURL	DB
DEVJ2PLG131	FOOMATIC	GETTXTDEV
GETTXT-RT	GLIB	GLIB2-DEV
GLIB2-RT	GS	GTK
GZIP	HEIMDAL	HPIJS
ICU-DEV	ICU-RT	INET
IPF	J2JRE131	J2JRE142
J2JRE150	J2PLG142	J2PLG150
J2PLS131	J2SDK131	J2SDK142
J2SDK150	JPEG	LDAP
LIBDNETDV	LIBDNETRT	LIBIDL
LIBOSR	LIBPNG	MODJK
MOZILLA	MPLAYER	MYSQL
ND	NICS	OPENLDAP
OPENSLP	OPENSSH	OPENSSL
OPENSSLD	OPENSSL-DEV	PATCHCK
PERL	PERLMODS	PGSQL
RDLIN-DEV	READLINE	RSYNC
SAMBA	SASL	SENDMAIL
SQUID	SYSINFO	TIFF
TOMCAT	UCCS	UNZIP
URIPARSER	URWFONTS	UW7MPDOC
UW7VCONF	VMTOOLS	XCLIENTS
XCONTRIB	XDRIVERS	XINUOSBIND
XINUOSBIND-DEV	XINUOSLIBICONV	XINUOSLIBICONV-DEV

XINUOSLIBXML2	XINUOSLIBXML2	XINUOSREADLINE
XINUOSREADLINE-DEV	XSERVER	XZ
XZ-DEV	ZIP	ZLIB
	ZLIB-DEV	

2. The UDK is installed during a SCO UnixWare 7 Definitive 2018 ISL or, if it is not already installed, is (space permitting) installed by **install.sh** on upgrade. Specifically:

   a. These optional 7.1.4 UDK packages are not installed because install.sh gives you the option to install later versions:

J2JRE142	J2PLG142	J2SDK142	UCCS

   To install these packages, use **install.sh** as above.

   b. These SCO UnixWare 7.1.4 UDK packages are installed by ISL and, if the UDK is not already installed, on upgrades by install.sh:

MEMTOOL	MTFDEV	TEDDAPPB	TEDDDEMOS	TEDDHELP
TEDDINCL	TEDDMAN	UCPLUS	UDKDOC	UEDEBUG
UNMSDK	USOFTINT		USTDCOMPS	XDEVSYS

   To reinstall, do the following:

   i. Mount the install DVD.

   ii. Run:

   ```
   pkgadd -dmount-point/UDK pkgname
   ```

   iii. Unmount the DVD.

   c. These seldom used 7.1.4 UDK packages are not installed by ISL or by default on an install.sh upgrade:

JAVAXCOMM	TCLDEV	URWFONTS

   To install the urwfont package, use install.sh as above.

   To install the javaxcomm or tcldev packages, use pkgadd as above.

   d. These 7.1.4 UDK packages are not installed because ISL or the uw714sd2m1 set installs later versions:

LIBC	LIBM	LIBTHREAD	SYSHEAD

3. To install a package not covered by 1. or 2. above:

a. Mount the DVD.

b. Check the top-level. If the package is present then:

```
pkgadd -dmount-point pkgname
```

c. To install an ISL package not covered in 1., 2. or 3.b. above, do the following:

```
pkgadd -dmount-point/SCO UnixWare.image pkgname
```

4. Critically, unmount the DVD when done and remove the DVD from the physical or virtual DVD drive.

WARNING: *ISL and upgrade are now on the same single DVD. It is very important to unmount the DVD after upgrading your system and before rebooting. Otherwise, the system may boot into an ISL environment. If that happens, immediately power off your system or VM and remove the bootable DVD media.*

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