



System Release 4.2.1

Release Notes

Please Read

Important

Please read this entire guide. If this guide provides installation or operation instructions, give particular attention to all safety statements included in this guide.

Notices

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About This Guide

Introduction

System Release 4.2.1 (SR 4.2.1) is a minor release built on System Release 4.2 (SR 4.2). These release notes contain the following information:

- Descriptions of the standard new features introduced with this system release
- Information you need to prepare your site for an upgrade to SR 4.2.1
- General information on contacting us
- A list of software versions installed with the base SR 4.2.1 system

Audience

These release notes are written for system operators, sales and program managers, and field technicians.

Scope

These release notes provide an executive overview of SR 4.2.1. If you have questions about this release or require more detailed information, contact Cisco Services.

Software Product Offering

We currently offer several types of software products that enable the cable service provider to better manage their Digital Broadband Delivery System (DBDS) networks:

- Application Platform Releases (Client Releases) offer a bundled software package that includes both the SARA and PowerTV® OS. Application Platform Releases are compatible with multiple system releases.
 - Application Maintenance Releases address a group of specific change requests that are required before the next application release is available.
- System Releases are software releases that are designed to improve or enhance the functionality of the Digital Network Control System (DNCS). A system release can be categorized as one of the following product types:
 - Major Releases and Minor Releases introduce new DBDS functionality while fixing known issues in the network.
 - Service Packs are executable files that are an accumulation of fixed change requests since the last major or minor release. After a service pack is issued for a specific major or minor release, each subsequent service pack includes all previously fixed change requests.
 - Patch Releases are single, executable files that address an urgent customer issue before the next system release.
 - Maintenance Releases incorporate patch releases and service packs into one software release.
- Headend Software Releases are software releases designed specifically for headend components to enhance hardware functionality.
- Application Software provides cable service providers with unique services and increased functionality that enhance the subscriber experience.

Document Version

This is the second release of this guide.

1

Why Choose System Release 4.2.1?

Introduction

SR 4.2.1 includes many features and enhancements implemented at the request of our customers. Review this chapter to learn more about these exciting changes.

Important: This chapter describes the features and enhancements for the standard version of this software release. This chapter also describes certain features and enhancements that are carried forward from previous system releases along with several optional features that are also carried forward.

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SR 4.2.1 at a Glance

Overview

This section provides an “at-a-glance” look at the new features and enhancements for SR 4.2.1. Each new feature and enhancement is described in detail later in this chapter. In addition, this chapter also describes certain features and enhancements that are carried forward from previous system releases.

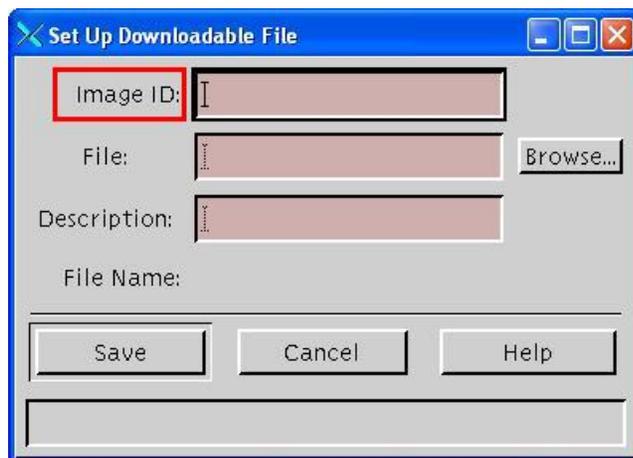
What Are the New Features in SR 4.2.1?

Assignable Image ID Field

This system release now allows you to specify an Image ID for device image files, instead of allowing the DNCS to assign an ID automatically. This feature allows you to use the same name for an image file across multiple headends.

If you want to specify an image ID, type the ID in the Image ID field on the Set Up Downloadable File window. If you do not want to specify an image ID, leave the Image ID field blank. Refer to the online help for more information.

Quick Path: DNCS Administrative Console > DNCS tab > Home Element Provisioning tab > Image > Downloadable Files tab > File > New



Generic QAM Support

This system release adds support to manage provisioning of generic QAMs through the published interface made available to the QAM vendors.

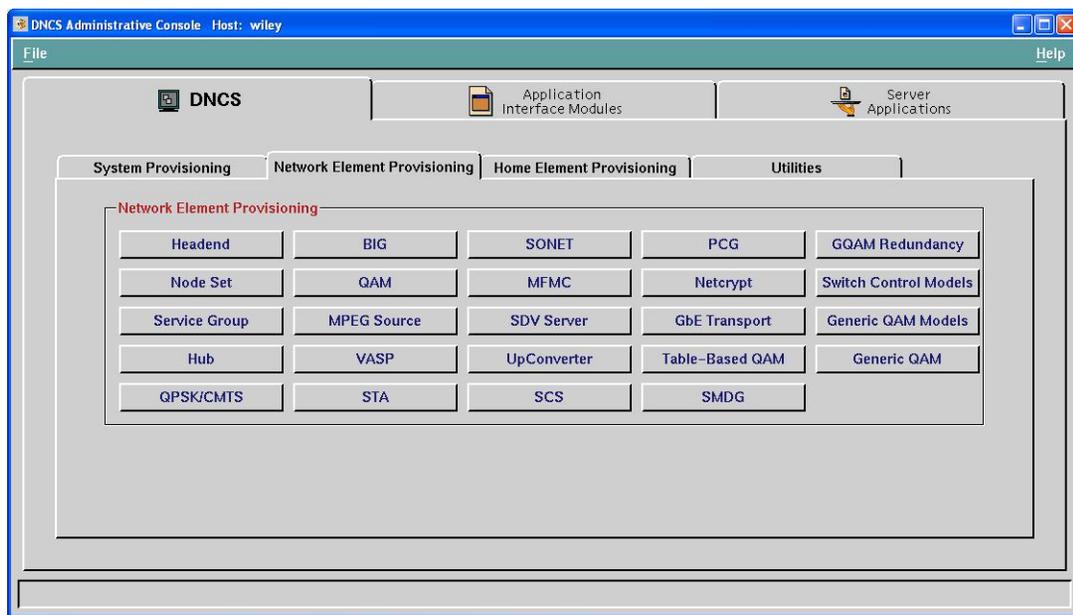
A Generic QAM button and a Generic QAM Models button have been added to the Network Element Provisioning tab. These buttons allow you to add traditional table-based QAM modulators to the DNCS. (The DNCS refers to these modulators as generic QAM modulators.) Adding a generic QAM modulator to the DNCS allows you to set up sessions on the modulator and manage the sessions.

However, unlike session-based modulators, generic QAM modulators do not support DNCS-supplied provisioning. As a result, specifications saved to the DNCS when the modulator is added (or provisioned) in the DNCS are not provided to the modulator when the modulator reboots. Instead, the modulator must be provisioned separately. For assistance provisioning generic QAM modulators, consult the documentation provided by the manufacturer of the modulator.

Note: You must contact your account manager to enable the feature. Then, you must stop and restart your DNCS processes.

The following illustrations provide examples of the new Generic QAM and Generic QAM Models buttons.

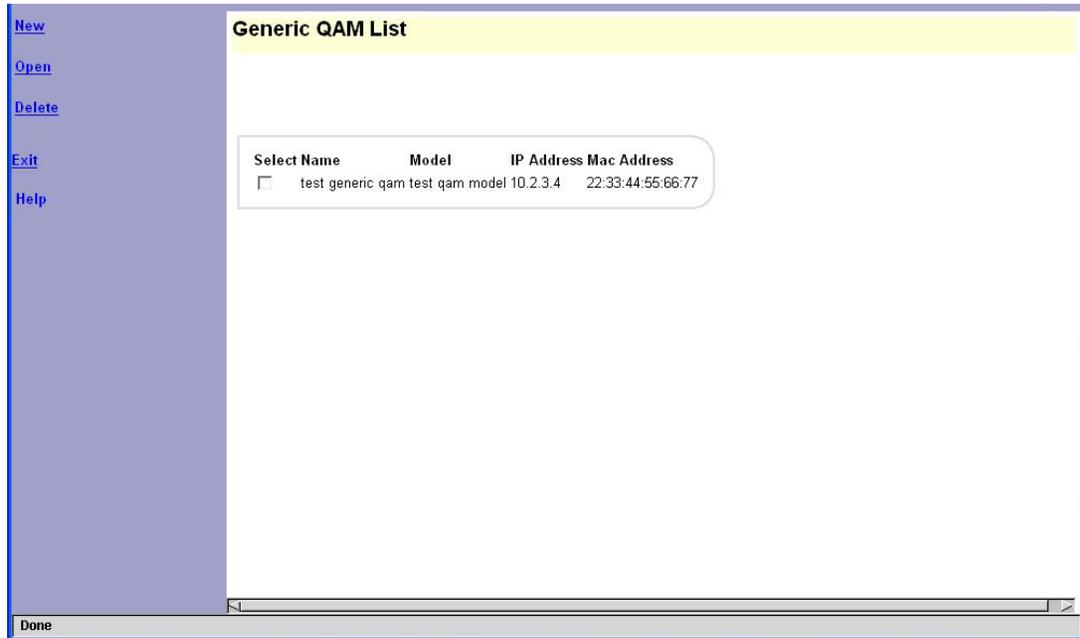
Quick Path: DNCS Administrative Console > DNCS tab > Network Element Provisioning tab



Chapter 1 Why Choose System Release 4.2.1?

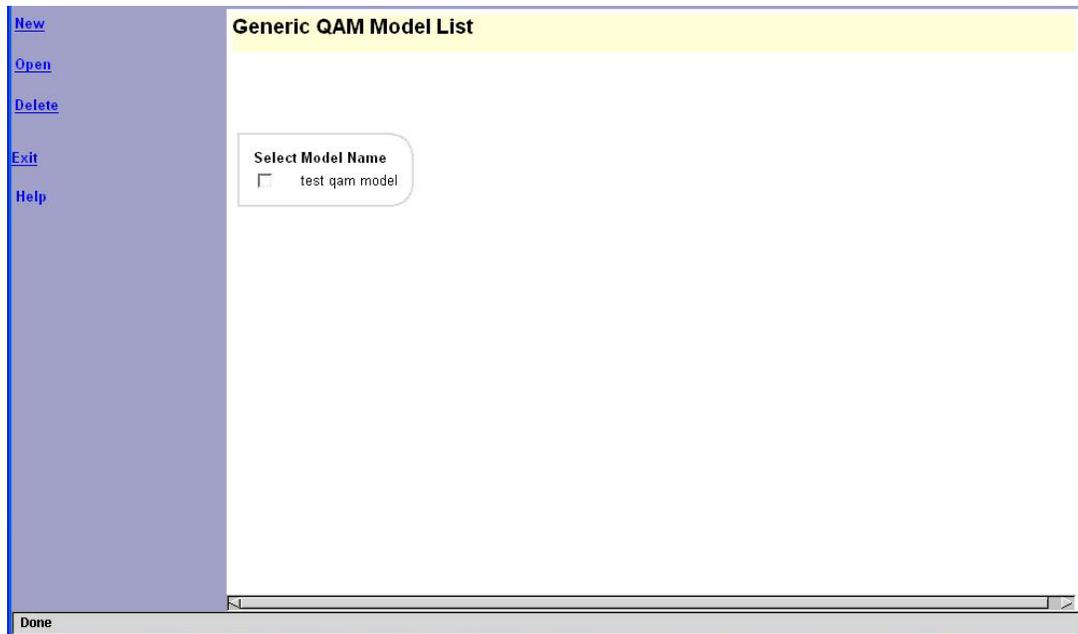
Generic QAM List window

The Generic QAM List window allows you to add, modify, or delete generic QAM modulators as needed. From this window, you can also set up multicast sessions on any modulator listed in the window.



Generic QAM Model List window

The Generic QAM Model List window allows you to add, modify, or delete a generic QAM model on the DNCS. Adding a generic QAM model to the DNCS is the first step in adding generic QAM modulators to the DNCS. When you add a generic QAM model to the DNCS, you define specifications that are unique to a particular model of QAM modulator. After you add generic QAM models, you can use the model to add an individual generic QAM modulator to the DNCS; the modulator will be added with the specifications of the model you used.



Hub Specific OOB SI DST

Out-of-band system information (SI) now carries a Daylight Saving Time (DST) descriptor for cable hosts with a CableCARD™ module.

In earlier system releases, every DHCT received the default hub DST rule regardless of the hub to which they were associated. Beginning with SR 4.2.1, you can define specific DST rules for each hub that distributes DST rules out-of-band. Every CableCARD Host that receives DST rules out-of-band will be able to receive a specific DST rule that is tailored for its hub.

Important: This feature does not affect DST rules that are distributed by Program and System Information Protocol (PSIP). It also does not affect legacy DHCTs that do not include CableCARD modules. In these situations, DHCTs will continue to receive the DST rule for the default hub.

The SCTE 65 requirements mandate support for DST descriptors for out-of-band (OOB) system information (SI). The DNCS implements support for hosts with CableCARD modules by populating the OOB SI daylight saving time (DST) descriptor based on the hub DST zone.

Chapter 1 Why Choose System Release 4.2.1?

To define a specific DST rule for a hub, you must create a DST rule to define the start and end dates for DST and assign the DST rule to a hub, just as in earlier system releases. You should also check the Hub Summary window and confirm that the correct settings are selected for the Timezone and DST Zone ID fields.

Quick Path: DNCS Administrative Console > Network Element Provisioning Tab > Hub

Select	Hub Name	Hub ID	Headend	Timezone	DST Zone ID
<input type="checkbox"/>	CapeCoralHub01	41	CapeCoral_LIONN	(GMT-05:00) Eastern Time (US & Canada), Bogota, Lima	UK
<input type="checkbox"/>	DenverHub1	21	Denver_LIONN	(GMT-07:00) Mountain Time (US & Canada), Arizona	US
<input type="checkbox"/>	DnccsHub1	11	Denver National	(GMT-07:00) Mountain Time (US & Canada), Arizona	US
<input type="checkbox"/>	HoumaHub01	31	Houma_LIONN	(GMT-06:00) Central Time (US & Canada), Mexico City	US
<input type="checkbox"/>	HubADubHub	46	CapeCoral_LIONN	(GMT-12:00) Kwajalein	Europe
<input type="checkbox"/>	WhatAlnceHub	44	CapeCoral_LIONN	(GMT-12:00) Kwajalein	No Zone. Observe Standard Time
<input type="checkbox"/>	Bogus6	6	Denver National	(GMT-12:00) Kwajalein	No Zone. Observe Standard Time
<input type="checkbox"/>	mnmeme	9999999	Denver National	(GMT-12:00) Kwajalein	No Zone. Observe Standard Time
<input type="checkbox"/>	test-hub0ave	9876	Denver National	(GMT-12:00) Kwajalein	Europe
<input type="checkbox"/>	testhub7	7	Denver National	(GMT-10:00) Hawaii, Aitutian	No Zone. Observe Standard Time
<input type="checkbox"/>	testhub00	88	Denver National	(GMT-12:00) Kwajalein	UK

OpenCable ID UI Support

The DNCS now provides UI support for the OpenCable™ host ID. The CableCARD WUI has been updated to show the host ID.

CableCARD ID	CableCARD MAC Address	Active Time	Host Change Count
0-011-026-639-499	00:1A:C3:1E:87:0D	06/28/07 12:33:54	2

Host MAC Address	Host ID <input type="text" value="0070004077718"/>	Encoded Host ID	Host Bound
		1C00638DB	<input checked="" type="radio"/> Yes <input type="radio"/> No

Also, the DHCT UI now includes a field to show the OpenCable ID.

The screenshot shows the 'Set Up DHCT' window with the following configuration details:

- MAC Address: 00:1A:C3:3A:07:D8
- Communications | Secure Services
- Site Name:
- Headend Name: crum_headend
- Hub Name: hub1
- Bridge Name: qpsk1
- Operational Status: Unknown
- Open Cable ID:** (highlighted with a red box)
- Service Group Name: - Unknown -
- Admin Status: In Service Two Way ▲
- DHCT Type: Explorer 8300HDC rev 3. ▲
- Boot Page: - none - ▲
- Primary VASP Name: - none - ▲
- S/W Table Of Contents: [] Select...
- Billing ID: []
- IP Address: 10. 1. 64. 20
- DHCT Serial Number: []

Buttons at the bottom: Save, Cancel, Help

Removal of Spectrum Support

Service providers want the flexibility of being able to choose whether or not to install the Spectrum Network Management Service (Spectrum). Past versions of the DNCS had Spectrum bundled in. Beginning with SR 4.2.1, the Spectrum network management product has been removed from the DNCS package and replaced with a separately installable product, allowing the customers to install the DNCS without Spectrum.

The UniPack installation process now prompts you to specify if you want to disable Spectrum.

USRM 1.0 Support

Universal Session and Resource Manager (USRM) is a standard Intel/Linux-based server that supports many major VOD and SDV interfaces and protocols. The USRM is integrated with the DBDS and enables systems to distribute and scale the real-time session and resource management functions of the DNCS.

This feature allows USRM to interface with the DNCS CAM processes to support encrypted VOD. This feature includes a DNCS-USRM RPC CA interface.

What's Fixed?

This section provides a description of the CRs implemented in SR 4.2.1.

CR 30252 DNCS Is Not Reclaiming the qpsk_mod_id

The DNCS supports up to 255 QPSK IDs, but an issue prevented the DNCS from reusing QPSK IDs that had been previously deleted. Therefore, the DNCS would not allow users to add new QPSKs, even after QPSK IDs were deleted (and presumably freed up). This issue has been corrected so that deleted IDs are now available for reuse.

CR 59518 The emmDistributor Process Can Conflict on DB Connections During Audit Process

In earlier releases, if the audit process query took longer than 10 minutes, the oobBridge cache would attempt to refresh the out-of-band list. However, this refresh could conflict with a currently running thread query, causing the emmDistributor to fail. This issue has been corrected.

CR 60655 Support Multiple Source IP Addresses for Source Switching

Previous system releases allowed users to enter up to three source IP addresses, but the DNCS did not send the second or third IP address to the GQAM. This limitation prevented the GQAM source switching feature from operating as expected. The DNCS now sends all three source IP addresses to the GQAM.

CR 60891 Solaris 10 Patches for SR 4.2.1

This CR creates new Solaris 10 Patches to upgrade the Solaris kernel and other critical components.

CR 61706 Remove Netscape from SAI Tools

Now that the DNCS uses Firefox, Netscape has been removed from SAI Tools. When a user tries to launch Netscape, a message will appear stating that Netscape is no longer bundled, and Firefox will launch automatically.

CR 62742 CCardServer Cores If String Is Too Long in Display_Message in podserverconfig

In earlier releases, a long display message string (more than 32 bytes) would cause CCardServer to core. Message strings of up to 255 bytes are now supported.

CR 63737 CableCARD WUI, Add CRL Does Not Warn User About Duplicate Host ID

In earlier system releases, the Revoked Host list did not effectively prohibit users from entering a duplicate host ID as a new host ID. In some cases, the Revoked Host list would accept the same host ID in different formats (for example, 0-010-020-030-040 and 0010020030040). The Revoked Host list now accurately identifies existing host IDs and prompts users to enter a different ID.

CR 63957 bfsRemote Goes Into Recover When Several QAM Ports Are Added To or Deleted From List

In earlier system releases, the bfsRemote process would go into recovery mode whenever a group of QAM ports was added to or deleted from a service group, or whenever third-party QAMs were added to the service group. While bfsRemote was in recovery mode, subscribers would see a service group error when trying to purchase VOD events. This issue has been corrected.

CR 66380 Rogue Wave Libraries Have To Be Updated to Include New U.S. DST Rules

Rogue Wave Software has updated its libraries (specifically librwtool.so.2) to reflect the new Daylight Saving Time rules in the United States. This software release includes those updated libraries.

CR 67457 Solaris 10 Has Security Vulnerability in Telnet Daemon

Solaris 10 had a security vulnerability in its telnet daemon, which allowed users to log in as root without a root password. This system release includes the emergency patch to correct this issue.

CR 69288 Overlay Transport Stream Routes Are Listed in the Session List UI

In previous versions of code, the Session List window included the overlay transport stream (TS) routes, making it possible for a user to delete the TS routes by mistake. These TS routes now only show up in the Transport Stream Route List window.

CR 69674 modDhctCfg Currently Limits at 300 Packages

The modDhctCfg process has been updated to allow sites to enter more than 1000 packages.

CR 70457 bossServer Cores when Processing Duplicated RPPV Add/Cancel Requests

Earlier, the bossServer process would core when handling duplicated RPPV transactions, meaning that set-tops could not be authorized for service. This issue has been corrected in this system release.

CR 73260 DRM Should Not Use Transport Stream Route Bandwidth to Calculate Remaining Bandwidth

The DRM no longer counts the transport stream route bandwidth twice when calculating remaining bandwidth. In earlier system releases, the DRM counted both the transport stream and the sessions contained in the transport stream. This issue has been corrected.

CR 75728 Unable To Save A CVT Image, OSM Cores

Previously, OSM would core whenever a user tried to save a CVT image. This problem has been corrected.

2

What Are the Site Requirements?

Introduction

This chapter provides information that helps you prepare for the upgrade to SR 4.2.1. Read this entire chapter before you upgrade.

For More Information

If you have questions or would like to order our products, please contact Cisco Services at 1-800-283-2636.

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Upgrade Logistics

Introduction

This section contains information that can help system operators plan the upgrade to SR 4.2.1.

Supported Upgrade Path

Note these important upgrade requirements:

- Systems that upgrade to SR 4.2.1 must currently be operating with system software from SR 2.2 or SR 3.2, or later, as well as DHCT client operating system (OS) 3.1 or later. The upgrade software is contained in a UniPack due to significant changes contained in SR 4.2.1 and other timesaving factors. Rollback procedures and software are included in the UniPack installation instructions in the event that the upgrade is unsuccessful.
- Our field service engineers or the system operator must have already installed the DNCS Utilities software onto the DNCS and should have already run the pre-upgrade checks to ensure system compatibility with SR 4.2.1 UniPack upgrade requirements. Refer to the *DNCS Utilities Installation and Operation Guide* for instructions on installing and executing the DNCS Utilities.

Important: You can now use Live Upgrade with the UniPack. Through the use of Live Upgrade, engineers can upgrade without shutting down the system processes until you activate the new system software.

Time to Complete

The actual upgrade to SR 4.2.1 must be completed within a single maintenance window that usually starts around midnight. A few pre-upgrade procedures, consisting mainly of system checks, backups, and various operations upon the metadevices of the DNCS, can be completed *before* the maintenance window begins.

Our engineers have determined that a typical site can be upgraded within one maintenance window. See *Scheduling Requirements* (on page 18) for additional details.

System Performance Impact

Interactive services will not be available during the maintenance window.

DNCS and Application Server Hardware Platforms

Introduction

This section describes the hardware configurations that are supported by SR 4.2.1.

Running the Doctor Report

- 1 If necessary, open an xterm window on the DNCS.
- 2 Type `cd /export/home/dncs/doctor` and then press **Enter**. The `/export/home/dncs/doctor` directory becomes the working directory.
- 3 Type `doctor` and then press **Enter**. The system generates a list of parameters that you can use to run the Doctor Report.

Note: Each parameter causes the Doctor Report to generate output with specific configuration information.

```
wiley:/export/home/dncs/doctor>doctor
= Doctor software version 5.1.0.6 =
= Doctor package version =
doctor -agestpbinqhc [ vd ] or
doctor [-c<number>]

a - (almost) All options (except q and x)
g - General Info: DNCS info, installed software info, DNCS and
App Server disk utilization, DNCS and App Server swap space,
database utilization, database extents, load average, DNCS
and App Server debug flags, tracing levels, DNCS and App
Server processes, DNCS and App Server corefiles, DNS, check
force tune for valid service, dncs license check, large log file check
DNCS install options
e - Element Info: DHCT state summary, DHCT type summary, active
elements, mod slot tolerance, source, source definitions,
segments, sessions, subscription packages, EMMs expiring soon.
s - SI Info: SI_INSERT_RATE, system time message, distinguished
SI QAM, SI out of band interval.
t - Time Info: DNCS and App Server time sync, timezone, DST.
p - PPV Info: PPV services and events, PPV and SAM service
discrepancies, event use services, PPV files, phoneactivetime,
EUT, GBAMs.
b - BFS Info: BFS carousels, BFS sessions, BFS source definitions.
i - IPC Info: IPC collector, IPC data files.
n - Ping Elements: QPSK Ethernet, QPSK RF, QAM, BIG, TED.
q - Check for quarantined qams and ping elements.
This option is NOT included in all (-a).
x - Check one-one correspondence of DHCTs and serial numbers.
This option is NOT included in all (-a).
v - Verbose mode: Detailed output, even if OK.
d - Suppress screen output. Write to output file only.
h - Generate this help text.
c - Clean up (delete) all but the last <number> doctor reports.
Use this switch independently of all others. Report NOT GENERATED.

One or more of the a, g, e, s, t, p, b, i, n, c, x or q options is required.
d and v are optional but should be used with a required option.
Option order is irrelevant.

Note the q option must be explicitly chosen. It can be time consuming.
The q option automatically sets the v (verbose) option and pings and checks rpc bind for qams.
wiley:/export/home/dncs/doctor>
```

- 4 Type `doctor -g` and then press **Enter** to view the version of DNCS software installed and the DNCS and Application Server platform, CPU, and disk information.

What to Verify Using the Doctor Report

Using the results of the Doctor Report, verify that your system meets the following requirements. For detailed information on reading the data in the Doctor Report, see the *DBDS Utilities Version 6.1 Installation Instructions and DNCS Utilities User Guide* (part number 4020695).

Important: DBDS Utilities 6.1 is required for SR 4.2.1.

DNCS System Release Required

Your system must be running SR 2.2, SR 3.2, or later. In the Doctor Report, look for the **SAIdnccs** entry under the **All SAI Installed Package Information** section. Ensure the version is **3.0.1.16** or later. If you have installed Service Packs for SR 2.2, your version may include additional letters and numbers. For example, 3.0.1.16p7 is SR 2.2 Service Pack 2.

DNCS Hardware Configurations

Ensure your site meets the following DNCS hardware requirements before upgrading to SR 4.2.1. The following table lists the minimum requirements for the DNCS hardware platforms that are supported by SR 4.2.1.

DNCS Server Platform	Hard Drive Configuration	Memory	Processor
Sun Fire V890	■ 6 X 146 GB	■ 8 GB min.	■ 2 X 1.5 GHz min.
	■ 12 X 146 GB	■ 16 GB min.	■ 4 X 1.5 GHz min.
Sun Fire V880	■ 12 X 73 GB	■ 8 GB min.	■ 4 X 900 MHz min.
	■ 6 X 73 GB	■ 4 GB min.	■ 2 X 900 MHz min.
Sun Enterprise 450	■ 7 X 18 GB	4 GB max.	4 X 400 MHz min.
	■ 10 X 18 GB		
Sun Enterprise 445	4 x 73 GB	4 GB	2 x 1.6 GHz min

Application Server Hardware Configurations

The following table lists the Application Server hardware platforms that are supported by SR 4.2.1.

Application Server Platform	Hard Drive Configuration	Memory	Processor
Sun V240	2 X 73 GB min.	2 GB min.	1 X 1.34 GHz min.
Sun V245	2 X 73 GB min.	2 GB min.	1 x 1.34 GHz min.
Sun Blade 150	1 X 20 GB min.	512 MB min.	1 X 550 MHz min.
Sun Ultra 5	1 X 20 GB min.	256 MB min.	1 X 333 MHz min.

Application Platform Release Dependencies

The following table shows the application platform release dependencies for this software.

Important: You must have these versions of application platform software *or later* installed on your system prior to beginning the upgrade process. If you do not install the correct application platform software *before* you upgrade your network, subscribers may see video freezing and black screens when using VOD or *anything-On-Demand* (xOD) applications.

Set-Top Platform	Operating System (OS)	SARA	PowerKEY® Conditional Access Version
Explorer RNG200 DVR 1.5.5.1003 or later	OS 8.0.40.1	1.90.12.1	N/A
Explorer 4250HDC Exp 2.0.0 (0701) or later	OS 6.20.28.1	1.61.5a100	4.0.1.1
Explorer 8300HDC DVR 1.5.3 (0801) or later	OS 6.20.28.1	1.90.5a101	3.9.7.13
Explorer 8300 DVR v. 1.4.3a10 or later v. 1.5.2	OS 6.14.74.1 OS 6.14.79.1	1.88.22.1 1.89.16.2	3.9 3.9
Explorer 8000/8010 DVR v. 1.4.3a10 or later v. 1.5.2	OS 6.12.74.1 OS 6.12.79.1	1.88.22.1 1.89.16.2	3.7.5 3.7.5
Explorer 3250HD HD 1.6.0 or later	OS 3.24.5.2	1.59.18.1	3.9
Explorer 2xxx, 31xx, 3200, 3100HD	OS 3.13.6.1	1.60.6.2	1.0.6.20 (Explorer 2000s) 1.0.7 (all others)

Scheduling Requirements

With the live upgrade, your site only needs to be down for 2 to 3 hours during the entire upgrade process. Most of the upgrade procedures have no system impact. The pre-install and pre-upgrade steps can be performed at any time of day. However, the actual upgrade process normally takes place during a maintenance window beginning at midnight. The following table provides a breakdown of each upgrade process.

Process	Length of Time	Activity
Pre-install	1-3 hours	Activities are performed by Cisco Services, including checking the overall health of the system. These activities do not impact the system.
Pre-upgrade	3-4 hours	Backing up the system: <ul style="list-style-type: none"> ■ Back up the system components ■ Back up the DNCS and Application Server files ■ Complete system checks These activities do not impact the system.
Upgrade	6-8 hours total; 2-3 of these hours require system outage Note: Actual time may vary based on the number of devices being upgraded.	Upgrade the DBDS network: <ul style="list-style-type: none"> ■ Back up the DNCS database ■ Install the DNCS and Application Server software ■ Determine which optional features (licensed or unlicensed) need to be enabled as a result of this upgrade ■ Install and download the component software (QAM, MQAM, GQAM, and QPSK modulator) ■ Reboot the hardware ■ Complete functional checks QPSK modulator upgrades and some QAM and MQAM upgrades can be completed with little or no subscriber impact. However, 2-3 hours of the upgrade require system outage.
Post-Upgrade	3-4 hours	Back up the system: <ul style="list-style-type: none"> ■ Back up the file system ■ Back up the DNCS database These activities do not impact the system.

Software Configuration

Introduction

This section lists the software versions in each media kit supplied with SR 4.2.1.

Antecedents

This release succeeds and carries forward all of the enhancements, features, and improvements of previous releases and related service packs.

Software Versions

The following table lists the configuration of headend components *after* the upgrade to SR 4.2.1.

DBDS Component	Version Number
DNCS	
Application	4.2.1.30
GUI/WUI	4.2.1.30
DNCS Application Patch	4.2.1.30
DNCS Support Software	
DNCS & Application Server Tools	4.2.1.12
DNCS Spectrum Kit	4.2.1.0
DNCS Report Writer	4.2.1.3
DNCS Online Help	4.2.1.2
Platform	
DNCS / Application Server Platform	4.3.0.4
Solaris	10 08/07
Solaris 10 Recommended / Security Patches	4.3.0.1
Application Server	
Application Server	3.5.0.2
Application Server Software Support	
DNCS & Application Server Tools	4.2.1.12

Chapter 2 What Are the Site Requirements?

DBDS Component	Version Number
QAM	
QAM App	2.5.7
MultiQAM	
MQAM App	2.6.18
GQAM	
GQAM	4.0.17
QPSK Mod/Demod	
QPSK Modulator	G05
QPSK Demodulator	G05
Netcrypt	
Netcrypt Bulk Encryptor	1.2.12

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Customer Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

Access your company's extranet site to view or order additional technical publications. For accessing instructions, contact the representative who handles your account. Check your extranet site often as the information is updated frequently.

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