

# K2 Solo

Media Server



## Service Manual



Affiliate with the N.V. KEMA in The Netherlands



# CERTIFICATE

Certificate Number: 510040.001

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# **K2 Solo**

Media Server

Service Manual

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# Finding Information

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This service manual provides procedures for servicing the K2™ Solo™ Media Server to the field-replaceable unit level. Use this manual to isolate problems to a board or module, such as the Power Supply, and to make repairs through module exchange.

## How this manual is organized

This manual is organized around the tasks required to service the K2 Solo Media Server. The following describes the chapters included in this manual:

**Chapter 1, *Product Description*** — Describes the key features, system components, and status indicators of the K2 Solo Media Server.

**Chapter 2, *System Messages*** — Lists the various messages and system codes that you might encounter as you use the K2 Solo Media Server.

**Chapter 3, *Service Procedures*** — Contains procedures for periodic maintenance and repair.

**Chapter 4, *Troubleshooting problems*** — Contains problem descriptions with steps for diagnosing and correcting the cause of the problem. Use this information if you are having trouble with your K2 Solo Media Server.

**Chapter 5, *Removing and replacing FRUs*** — Contains procedures for removing and replacing field replaceable hardware components.

## Getting more information

The following sections help you find the information you need in product manuals and elsewhere.

### For the installer of a K2 Solo Media Server

If you are installing a K2 Solo Media Server, refer to documentation in the following sequence:

	Find this document...	In these locations...	In these formats:
1	K2 Release Notes	K2 product shipping box	Printed
		Grass Valley Website	PDF file
2	Quick Start Guide for the K2 product	K2 product shipping box	Printed
		K2 Documentation CD	PDF file
		Grass Valley Website	PDF file
3	K2 System Guide	K2 Documentation CD	PDF file
		Grass Valley Website	PDF file

### Release Notes

The K2 Release Notes contain the latest information about the software shipped on your system. The release notes include software upgrade instructions, software specifications and requirements, feature changes from the previous releases, and any

known problems. Because release notes contain the latest information, they are printed out and included in the K2 product shipping box, rather than included in the Documentation CD-ROM. You should always check the Grass Valley Website to determine if there is an updated version of release notes available.

## Documentation CD

Except for the release notes, the full set of support documentation, including this manual, is available on the K2 Documentation CD that you receive with your K2 product. You can find the Documentation CD packaged in K2 product shipping boxes.

The Documentation CD includes the following:

- **K2 AppCenter User Manual** — Provides instructions for configuring and operating the media channels of product.
- **Quick Start Guides** — The Quick Start Guide provides step-by-step installation instructions for basic installation and operation of the K2 product.
- **K2 System Guide** — Contains the product specifications and instructions for modifying system settings.
- **Service Manuals** — Contains information on servicing and maintaining the K2 product.
- **K2 SAN Installation and Service Manual** — Contains installation, configuration, and maintenance procedures for shared storage options.
- **K2 Storage Cabling Guide** — Contains diagrams for cabling the devices of the K2 Solo Media Server.
- **RAID Instruction Manuals** — There is an Instruction Manual for each type of RAID storage device that can be a part of a K2 Solo Media Server. These manuals contain procedures for configuring and servicing the device.
- **Fibre Channel Switch Installation Manual** — Contains information on configuring and servicing the Fibre Channel switch.

## On-line Help Systems

**K2 AppCenter Help** — In the AppCenter user interface menu bar select **Help**, then choose **AppCenter Help Topics** from the drop-down menu.

**SiteConfig Help** — In the SiteConfig user interface menu bar select **Help**, then choose **SiteConfig Help Topics** from the drop-down menu.

**NetCentral Help** — From the NetCentral interface select **Help | NetCentral Help Topics**.

## NetCentral documentation

The NetCentral product has its own documentation set, described as follows:

- **NetCentral Quick Start Guide** — Provides an overview of the installation process to quickly set up and run NetCentral.
- **NetCentral Installation Guide** — Identifies requirements and procedures to correctly

set up servers and devices, as well as provides detailed instructions to install and configure NetCentral software.

- **NetCentral User Guide** — Describes how to use the NetCentral Manager to monitor devices.
- **NetCentral Help** — From the NetCentral interface access on-line help. Select **Help | NetCentral Help Topics**.

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- **NetCentral Quick Start Guide** — Provides an overview of the installation process to quickly set up and run NetCentral.
- **NetCentral Installation Guide** — Identifies requirements and procedures to correctly set up servers and devices, as well as provides detailed instructions to install and configure NetCentral software.
- **NetCentral User Guide** — Describes how to use the NetCentral Manager to monitor devices.
- **NetCentral Help** — From the NetCentral interface access on-line help. Select **Help | NetCentral Help Topics**.

Also find information about monitoring a specific product in that product's manuals.

## **Grass Valley Web Site**

This public Web site contains all the latest manuals and documentation, and additional support information. Use the following URL.

<http://www.grassvalley.com>.

## **Grass Valley Product Support**

For technical assistance, to check on the status of a question, or to report new issue, contact Grass Valley Product Support via e-mail, the Web, or by phone or fax.

### **Web Technical Support**

To access support information on the Web, visit the product support Web page on the Grass Valley Web site. You can download software or find solutions to problems.

**World Wide Web:** <http://www.grassvalley.com/support/>

**Technical Support E-mail Address:** [gvgtechsupport@grassvalley.com](mailto:gvgtechsupport@grassvalley.com).

### **Telephone Support**

Use the following information to contact Product Support by phone.

## International Support Centers

Our international support centers are available 24 hours a day, 7 days a week.

Support Center	Toll free	In country
France	+800 80 80 20 20	+33 1 48 25 20 20
United States	+1 800 547 8949	+1 530 478 4148

## Authorized Local Support Representative

A local support representative may be available in your country. To locate a support center during normal local business hours, refer to the following list. This list is regularly updated on the website for Grass Valley Product Support (<http://www.grassvalley.com/support/contact/phone/>).

After-hours local phone support is also available for warranty and contract customers.

Region	Country	Telephone
<b>Asia</b>	China	+86 10 5883 7575
	Hong Kong, Taiwan, Korea, Macau	+852 2531 3058
	Japan	+81 3 6848 5561
	Southeast Asia - Malaysia	+603 7492 3303
	Southeast Asia - Singapore	+65 6379 1769
	Indian Subcontinent	+91 11 515 282 502 +91 11 515 282 504
<b>Pacific</b>	Australia, New Zealand	+61 1300 721 495
<b>Central America, South America</b>	All	+55 11 5509 3440
<b>North America</b>	North America, Mexico, Caribbean	+1 800 547 8949 +1 530 478 4148
<b>Europe</b>	UK, Ireland, Israel	+44 118 923 0499
	Benelux – Netherlands	+31 (0) 35 62 38 421
	Benelux – Belgium	+32 (0) 2 334 90 30
	France	+800 80 80 20 20 +33 1 48 25 20 20
	Germany, Austria, Eastern Europe	+49 6150 104 444
	Belarus, Russia, Tadjikistan, Ukraine, Uzbekistan	+7 095 258 09 20 +33 (0) 2 334 90 30
	Nordics (Norway, Sweden, Finland, Denmark, Iceland)	+45 40 47 22 37
	Southern Europe – Italy	+39 02 24 13 16 01 +39 06 87 20 35 42
	Southern Europe – Spain	+34 91 512 03 50

Region	Country	Telephone
Middle East, Near East, Africa	Middle East	+971 4 299 64 40
	Near East and Africa	+800 80 80 20 20 +33 1 48 25 20 20



## END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.



For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: [www.thomsongrassvalley.com/environment](http://www.thomsongrassvalley.com/environment)





# ***Safety Summaries***


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Read the following sections for important safety information.

- Safety Summary
- Sicherheit – Überblick
- Consignes desécurité
- Certifications and compliances

## Safety Summary


Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.


 **WARNING:** Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

### Safety terms and symbols

#### Terms in this manual

Safety-related statements may appear in this manual in the following form:

 **WARNING:** Warning statements identify conditions or practices that may result in personal injury or loss of life.

 **CAUTION:** Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

#### Terms on the product

These terms may appear on the product:


**DANGER** — A personal injury hazard is immediately accessible as you read the marking.


**WARNING** — A personal injury hazard exists but is not immediately accessible as you read the marking.


**CAUTION** — A hazard to property, product, and other equipment is present.

#### Symbols on the product




The following symbols may appear on the product:

 Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

 Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.

 This is a prompt to note fuse rating when replacing fuse(s). The fuse referenced in the text must be replaced with one having the ratings indicated.



- 
-  Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.
  -  Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.
  -  Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

## Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life.

**Dangerous voltage or current may be present** — Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

**Do not service alone** — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

**Remove jewelry** — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

**Avoid exposed circuitry** — Do not touch exposed connections, components or circuitry when power is present.

**Use proper power cord** — Use only the power cord supplied or specified for this product.

**Ground product** — Connect the grounding conductor of the power cord to earth ground.

**Operate only with covers and enclosure panels in place** — Do not operate this product when covers or enclosure panels are removed.

**Use correct fuse** — Use only the fuse type and rating specified for this product.

**Use only in dry environment** — Do not operate in wet or damp conditions.

**Use only in non-explosive environment** — Do not operate this product in an explosive atmosphere.

**High leakage current may be present** — Earth connection of product is essential before connecting power.

**Dual power supplies may be present** — Be certain to plug each power supply cord into a separate branch circuit employing a separate service ground. Disconnect both power supply cords prior to servicing.

**Double pole neutral fusing** — Disconnect mains power prior to servicing.

**Use proper lift points** — Do not use door latches to lift or move equipment.

**Avoid mechanical hazards** — Allow all rotating devices to come to a stop before servicing.

## **Cautions**

The following caution statements identify conditions or practices that can result in damage to equipment or other property

**Use correct power source** — Do not operate this product from a power source that applies more than the voltage specified for the product.

**Use correct voltage setting** — If this product lacks auto-ranging power supplies, before applying power ensure that the each power supply is set to match the power source.

**Provide proper ventilation** — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

**Use anti-static procedures** — Static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

**Do not operate with suspected equipment failure** — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

**Ensure mains disconnect** — If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

**Route cable properly** — Route power cords and other cables so that they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

**Use correct power supply cords** — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

**Use correct replacement battery** — This product may contain batteries. To reduce the risk of explosion, check polarity and replace only with the same or equivalent type recommended by manufacturer. Dispose of used batteries according to the manufacturer's instructions.

**Troubleshoot only to board level** — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICs). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

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# Sicherheit – Überblick

Lesen und befolgen Sie die wichtigen Sicherheitsinformationen dieses Abschnitts. Beachten Sie insbesondere die Anweisungen bezüglich

Brand-, Stromschlag- und Verletzungsgefahren. Weitere spezifische, hier nicht aufgeführte Warnungen finden Sie im gesamten Handbuch.



**WARNUNG:** *Alle Anweisungen in diesem Handbuch, die das Abnehmen der Geräteabdeckung oder des Gerätegehäuses erfordern, dürfen nur von qualifiziertem Servicepersonal ausgeführt werden. Um die Stromschlaggefahr zu verringern, führen Sie keine Wartungsarbeiten außer den in den Bedienungsanleitungen genannten Arbeiten aus, es sei denn, Sie besitzen die entsprechende Qualifikationen für diese Arbeiten.*

## Sicherheit – Begriffe und Symbole

### In diesem Handbuch verwendete Begriffe

Sicherheitsrelevante Hinweise können in diesem Handbuch in der folgenden Form auftauchen:



**WARNUNG:** *Warnungen weisen auf Situationen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen.*



**VORSICHT:** *Vorsichtshinweise weisen auf Situationen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen oder zum zeitweisen Ausfall wichtiger Komponenten in der Arbeitsumgebung führen können.*

### Hinweise am Produkt

Die folgenden Hinweise können sich am Produkt befinden:

**GEFAHR** – Wenn Sie diesen Begriff lesen, besteht ein unmittelbares Verletzungsrisiko.

**WARNUNG** – Wenn Sie diesen Begriff lesen, besteht ein mittelbares Verletzungsrisiko.






**VORSICHT** – Es besteht ein Risiko für Objekte in der Umgebung, den Mixer selbst oder andere Ausrüstungskomponenten.

### Symbole am Produkt

Die folgenden Symbole können sich am Produkt befinden:



Weist auf eine gefährliche Hochspannung im Gerätegehäuse hin, die stark genug sein kann, um eine Stromschlaggefahr darzustellen.

-  Weist darauf hin, dass der Benutzer, Bediener oder Servicetechniker wichtige Bedienungs-, Wartungs- oder Serviceanweisungen in den Produkthandbüchern lesen sollte.
-  Dies ist eine Aufforderung, beim Wechsel von Sicherungen auf deren Nennwert zu achten. Die im Text angegebene Sicherung muss durch eine Sicherung ersetzt werden, die die angegebenen Nennwerte besitzt.
-  Weist auf eine Schutzerdungsklemme hin, die mit dem Erdungskontakt verbunden werden muss, bevor weitere Ausrüstungskomponenten angeschlossen werden.
-  Weist auf eine externe Schutzerdungsklemme hin, die als Ergänzung zu einem internen Erdungskontakt an die Erde angeschlossen werden kann.
-  Weist darauf hin, dass es statisch empfindliche Komponenten gibt, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

## Warnungen

Die folgenden Warnungen weisen auf Bedingungen oder Vorgehensweisen hin, die Verletzungs- oder Lebensgefahr bergen:

**Gefährliche Spannungen oder Ströme** – Schalten Sie den Strom ab, und entfernen Sie ggf. die Batterie, bevor sie Schutzabdeckungen abnehmen, löten oder Komponenten austauschen.

**Servicearbeiten nicht alleine ausführen** – Führen Sie interne Servicearbeiten nur aus, wenn eine weitere Person anwesend ist, die erste Hilfe leisten und Wiederbelebungsmaßnahmen einleiten kann.

**Schmuck abnehmen** – Legen Sie vor Servicearbeiten Schmuck wie Ringe, Uhren und andere metallische Objekte ab.

**Keine offen liegenden Leiter berühren** – Berühren Sie bei eingeschalteter Stromzufuhr keine offen liegenden Leitungen, Komponenten oder Schaltungen.

**Richtiges Netzkabel verwenden** – Verwenden Sie nur das mitgelieferte Netzkabel oder ein Netzkabel, das den Spezifikationen für dieses Produkt entspricht.

**Gerät erden** – Schließen Sie den Erdleiter des Netzkabels an den Erdungskontakt an.

**Gerät nur mit angebrachten Abdeckungen und Gehäuseseiten betreiben** – Schalten Sie dieses Gerät nicht ein, wenn die Abdeckungen oder Gehäuseseiten entfernt wurden.

**Richtige Sicherung verwenden** – Verwenden Sie nur Sicherungen, deren Typ und Nennwert den Spezifikationen für dieses Produkt entsprechen.

**Gerät nur in trockener Umgebung verwenden** – Betreiben Sie das Gerät nicht in nassen oder feuchten Umgebungen.

**Gerät nur verwenden, wenn keine Explosionsgefahr besteht** – Verwenden Sie dieses Produkt nur in Umgebungen, in denen keinerlei Explosionsgefahr besteht.

---

**Hohe Kriechströme** – Das Gerät muss vor dem Einschalten unbedingt geerdet werden.

**Doppelte Spannungsversorgung kann vorhanden sein** – Schließen Sie die beiden Anschlußkabel an getrennte Stromkreise an. Vor Servicearbeiten sind beide Anschlußkabel vom Netz zu trennen.

**Zweipolige, neutrale Sicherung** – Schalten Sie den Netzstrom ab, bevor Sie mit den Servicearbeiten beginnen.

**Fassen Sie das Gerät beim Transport richtig an** – Halten Sie das Gerät beim Transport nicht an Türen oder anderen beweglichen Teilen fest.

**Gefahr durch mechanische Teile** – Warten Sie, bis der Lüfter vollständig zum Halt gekommen ist, bevor Sie mit den Servicearbeiten beginnen.

## Vorsicht

Die folgenden Vorsichtshinweise weisen auf Bedingungen oder Vorgehensweisen hin, die zu Schäden an Ausrüstungskomponenten oder anderen Gegenständen führen können:

**Gerät nicht öffnen** – Durch das unbefugte Öffnen wird die Garantie ungültig.

**Richtige Spannungsquelle verwenden** – Betreiben Sie das Gerät nicht an einer Spannungsquelle, die eine höhere Spannung liefert als in den Spezifikationen für dieses Produkt angegeben.

**Gerät ausreichend belüften** – Um eine Überhitzung des Geräts zu vermeiden, müssen die Ausrüstungskomponenten entsprechend den Installationsanweisungen belüftet werden. Legen Sie kein Papier unter das Gerät. Es könnte die Belüftung behindern. Platzieren Sie das Gerät auf einer ebenen Oberfläche.

**Antistatische Vorkehrungen treffen** – Es gibt statisch empfindliche Komponenten, die durch eine elektrostatische Entladung beschädigt werden können. Verwenden Sie antistatische Prozeduren, Ausrüstung und Oberflächen während der Wartung.

**CF-Karte nicht mit einem PC verwenden** – Die CF-Karte ist speziell formatiert. Die auf der CF-Karte gespeicherte Software könnte gelöscht werden.

**Gerät nicht bei eventuellem Ausrüstungsfehler betreiben** – Wenn Sie einen Produktschaden oder Ausrüstungsfehler vermuten, lassen Sie die Komponente von einem qualifizierten Servicetechniker untersuchen.

**Kabel richtig verlegen** – Verlegen Sie Netzkabel und andere Kabel so, dass Sie nicht beschädigt werden. Stützen Sie schwere Kabelbündel ordnungsgemäß ab, damit die Anschlüsse nicht beschädigt werden.

**Richtige Netzkabel verwenden** – Wenn Netzkabel mitgeliefert wurden, erfüllen diese alle nationalen elektrischen Normen. Der Betrieb dieses Geräts mit Spannungen über 130 V AC erfordert Netzkabel, die NEMA-Konfigurationen entsprechen. Wenn internationale Netzkabel mitgeliefert wurden, sind diese für das Verwendungsland zugelassen.


**Richtige Ersatzbatterie verwenden** – Dieses Gerät enthält eine Batterie. Um die Explosionsgefahr zu verringern, prüfen Sie die Polarität und tauschen die Batterie nur gegen eine Batterie desselben Typs oder eines gleichwertigen, vom Hersteller empfohlenen Typs aus. Entsorgen Sie gebrauchte Batterien entsprechend den Anweisungen des Batterieherstellers.

Das Gerät enthält keine Teile, die vom Benutzer gewartet werden können. Wenden Sie sich bei Problemen bitte an den nächsten Händler.

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## Consignes desécurité


Il est recommandé de lire, de bien comprendre et surtout de respecter les informations relatives à la sécurité qui sont exposées ci-après, notamment les consignes destinées à prévenir les risques d'incendie, les décharges électriques et les blessures aux personnes. Les avertissements complémentaires, qui ne sont pas nécessairement repris ci-dessous, mais présents dans toutes les sections du manuel, sont également à prendre en considération.


 **AVERTISSEMENT:** *Toutes les instructions présentes dans ce manuel qui concernent l'ouverture des capots ou des logements de cet équipement sont destinées exclusivement à des membres qualifiés du personnel de maintenance. Afin de diminuer les risques de décharges électriques, ne procédez à aucune intervention d'entretien autre que celles contenues dans le manuel de l'utilisateur, à moins que vous ne soyez habilité pour le faire.*

## Consignes et symboles de sécurité

### Termes utilisés dans ce manuel

Les consignes de sécurité présentées dans ce manuel peuvent apparaître sous les formes suivantes :

 **AVERTISSEMENT:** *Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales.*

 **MISE EN GARDE:** *Les mises en garde signalent des conditions ou des pratiques susceptibles d'occasionner un endommagement à l'équipement ou aux installations, ou de rendre l'équipement temporairement non opérationnel, ce qui peut porter préjudice à vos activités.*

### Signalétique apposée sur le produit

La signalétique suivante peut être apposée sur le produit :


**DANGER** — risque de danger imminent pour l'utilisateur.






**AVERTISSEMENT** — Risque de danger non imminent pour l'utilisateur.

**MISE EN GARDE** — Risque d'endommagement du produit, des installations ou des autres équipements.

### Symboles apposés sur le produit

Les symboles suivants peut être apposés sur le produit :

 Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

-  Signale que l'utilisateur, l'opérateur ou le technicien de maintenance doit faire référence au(x) manuel(s) pour prendre connaissance des instructions d'utilisation, de maintenance ou d'entretien.
-  Il s'agit d'une invite à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.
-  Identifie une borne de protection de mise à la masse qui doit être raccordée correctement avant de procéder au raccordement des autres équipements.
-  Identifie une borne de protection de mise à la masse qui peut être connectée en tant que borne de mise à la masse supplémentaire.
-  Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

## Avertissements

Les avertissements suivants signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire même fatales :

**Présence possible de tensions ou de courants dangereux** — Mettez hors tension, débranchez et retirez la pile (le cas échéant) avant de déposer les couvercles de protection, de défaire une soudure ou de remplacer des composants.

**Ne procédez pas seul à une intervention d'entretien** — Ne réalisez pas une intervention d'entretien interne sur ce produit si une personne n'est pas présente pour fournir les premiers soins en cas d'accident.

**Retirez tous vos bijoux** — Avant de procéder à une intervention d'entretien, retirez tous vos bijoux, notamment les bagues, la montre ou tout autre objet métallique.

**Évitez tout contact avec les circuits exposés** — Évitez tout contact avec les connexions, les composants ou les circuits exposés s'ils sont sous tension.

**Utilisez le cordon d'alimentation approprié** — Utilisez exclusivement le cordon d'alimentation fourni avec ce produit ou spécifié pour ce produit.

**Raccordez le produit à la masse** — Raccordez le conducteur de masse du cordon d'alimentation à la borne de masse de la prise secteur.

**Utilisez le produit lorsque les couvercles et les capots sont en place** — N'utilisez pas ce produit si les couvercles et les capots sont déposés.

**Utilisez le bon fusible** — Utilisez exclusivement un fusible du type et du calibre spécifiés pour ce produit.

**Utilisez ce produit exclusivement dans un environnement sec** — N'utilisez pas ce produit dans un environnement humide.

**Utilisez ce produit exclusivement dans un environnement non explosible** — N'utilisez pas ce produit dans un environnement dont l'atmosphère est explosible.



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**Présence possible de courants de fuite** — Un raccordement à la masse est indispensable avant la mise sous tension.

**Deux alimentations peuvent être présentes dans l'équipement** — Assurez vous que chaque cordon d'alimentation est raccordé à des circuits de terre séparés. Débranchez les deux cordons d'alimentation avant toute intervention.

**Fusion neutre bipolaire** — Débranchez l'alimentation principale avant de procéder à une intervention d'entretien.

**Utilisez les points de levage appropriés** — Ne pas utiliser les verrous de la porte pour lever ou déplacer l'équipement.

**Évitez les dangers mécaniques** — Laissez le ventilateur s'arrêter avant de procéder à une intervention d'entretien.

## Mises en garde

Les mises en garde suivantes signalent les conditions et les pratiques susceptibles d'occasionner des dommages à l'équipement et aux installations :

**N'ouvrez pas l'appareil** — Toute ouverture prohibée de l'appareil aura pour effet d'annuler la garantie.

**Utilisez la source d'alimentation adéquate** — Ne branchez pas ce produit à une source d'alimentation qui utilise une tension supérieure à la tension nominale spécifiée pour ce produit.

**Assurez une ventilation adéquate** — Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation. Ne déposez aucun document sous l'appareil – ils peuvent gêner la ventilation. Placez l'appareil sur une surface plane.

**Utilisez des procédures antistatiques** - Les composants sensibles à l'électricité statique présents dans l'équipement sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

**N'utilisez pas la carte CF avec un PC** — La carte CF a été spécialement formatée. Le logiciel enregistré sur la carte CF risque d'être effacé.

**N'utilisez pas l'équipement si un dysfonctionnement est suspecté** — Si vous suspectez un dysfonctionnement du produit, faites inspecter celui-ci par un membre qualifié du personnel d'entretien.

**Acheminez les câbles correctement** — Acheminez les câbles d'alimentation et les autres câbles de manière à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.

**Utilisez les cordons d'alimentation adéquats** — Les cordons d'alimentation de cet équipement, s'ils sont fournis, satisfont aux exigences de toutes les réglementations régionales. L'utilisation de cet équipement à des tensions dépassant les 130 V en c.a. requiert des cordons d'alimentation qui satisfont aux exigences des configurations NEMA. Les cordons internationaux, s'ils sont fournis, ont reçu l'approbation du pays dans lequel l'équipement est utilisé.

**Utilisez une pile de remplacement adéquate** — Ce produit renferme une pile. Pour réduire le risque d'explosion, vérifiez la polarité et ne remplacez la pile que par une pile du même type, recommandée par le fabricant. Mettez les piles usagées au rebut conformément aux instructions du fabricant des piles.

Cette unité ne contient aucune partie qui peut faire l'objet d'un entretien par l'utilisateur. Si un problème survient, veuillez contacter votre distributeur local.

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# Certifications and compliances

## Canadian certified power cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

## FCC emission control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley can affect emission compliance and could void the user's authority to operate this equipment.

## Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

## EN55103 1/2 Class A warning

This product has been evaluated for Electromagnetic Compatibility under the EN 55103-1/2 standards for Emissions and Immunity and meets the requirements for E4 environment.

This product complies with Class A (E4 environment). In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

## FCC emission limits

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

## Laser compliance

### Laser safety requirements

This product may contain a Class 1 certified laser device. Operating this product outside specifications or altering its original design may result in hazardous radiation exposure, and may be considered an act of modifying or new manufacturing of a laser product under U.S. regulations contained in 21CFR Chapter 1, subchapter J or CENELEC regulations in HD 482 S1. People performing such an act are required by law to recertify and reidentify this product in accordance with provisions of 21CFR subchapter J for distribution within the U.S.A., and in accordance with CENELEC HD 482 S1 for distribution within countries using the IEC 825 standard.

### Laser safety

Laser safety in the United States is regulated by the Center for Devices and Radiological Health (CDRH). The laser safety regulations are published in the “Laser Product Performance Standard,” Code of Federal Regulation (CFR), Title 21, Subchapter J.

The International Electrotechnical Commission (IEC) Standard 825, “Radiation of Laser Products, Equipment Classification, Requirements and User’s Guide,” governs laser products outside the United States. Europe and member nations of the European Free Trade Association fall under the jurisdiction of the Comité Européen de Normalization Electrotechnique (CENELEC).

## Safety certification

This product has been evaluated and meets the following Safety Certification Standards:

Standard	Designed/tested for compliance with:
ANSI/UL 60950-1	Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition 2007).
IEC 60950-1 with CB cert.	Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition, 2005).
CAN/CSA C22.2 No. 60950-1	Safety of Information Technology Equipment, including Electrical Business Equipment (Second edition 2007).
BS EN 60950-1	Safety of Information Technology Equipment, including Electrical Business Equipment 2006.

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# ***Product Description***

Topics in this section include the following:

- “Overview description” on page 30
- “K2 Solo Media Server orientation” on page 30
- “FRU functional descriptions” on page 31
- “System Overview” on page 34
- “Status indicators” on page 35

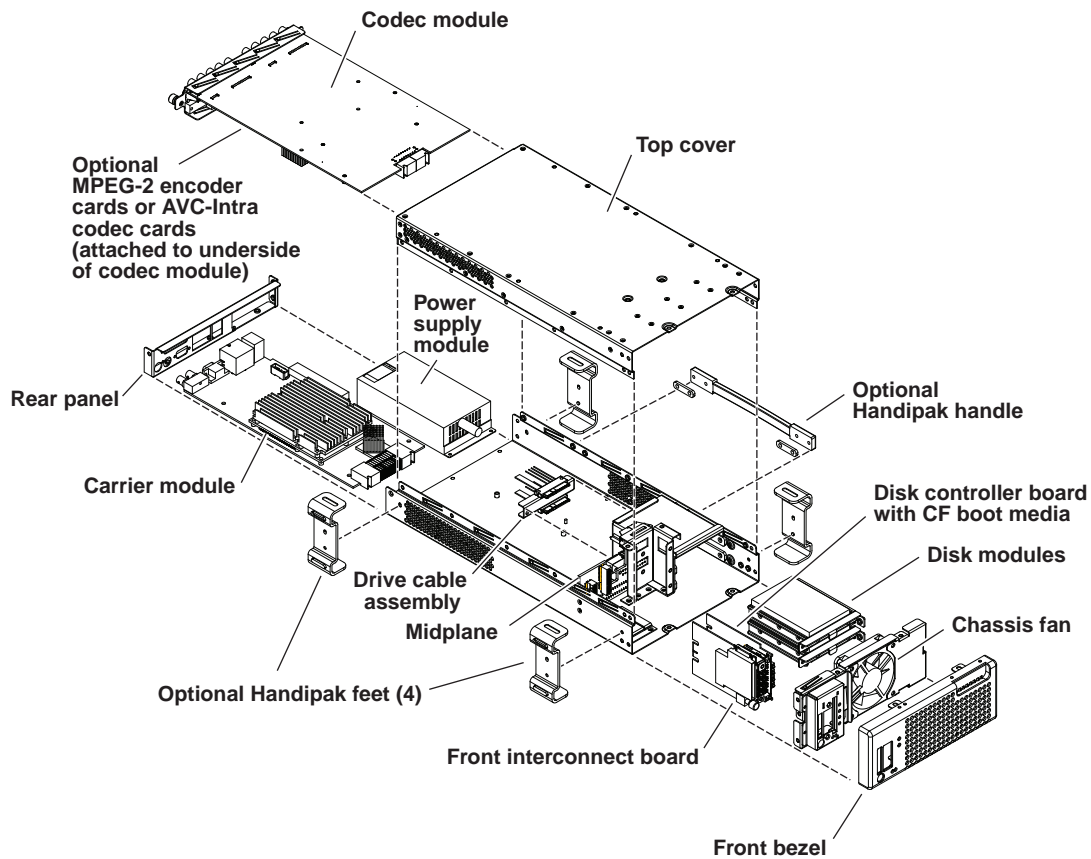
## Overview description

The K2 Solo Media Server is a cost-effective media platform that incorporates IT and storage technologies to deliver a networked solution to facilities for replay in sports, news, live, and live-to-tape applications, as well as ingest, playout, and media asset management. It is a comprehensive platform that provides a suite of user applications, system tools, and the largest range of third party interactivity in the industry.

Refer to the *K2 System Guide* for other high-level descriptions of features, controls, applications, and subsystems.

## K2 Solo Media Server orientation

The following illustration shows the location of Field Replaceable Units (FRUs) and other components in the K2 Solo Media Server.



## FRU functional descriptions

The Field Replaceable Units (FRUs) described in this section are as follows:

- [“Chassis fan”](#)
- [“Disk modules”](#)
- [“CompactFlash boot media”](#)
- [“Power supply module”](#)
- [“Codec module”](#)
- [“MPEG-2 encoder card”](#)
- [“AVC-Intra codec card”](#)
- [“Disk controller board”](#)
- [“Front interconnect board”](#)
- [“Midplane board”](#)
- [“Carrier module”](#)

For procedures, refer to [Chapter 5, Removing and replacing FRUs](#).

### Chassis fan

The chassis fan is mounted in the fan bracket. It provides cooling to the unit. It is mounted in the front of the unit, behind the front bezel.

Refer to [“Fan assembly removal” on page 92](#) for procedures.

### Disk modules

There are 2 slots for disk modules in the K2 Solo Media Server. The slots are located behind the front bezel assembly in the front of the chassis. Each slot can contain one disk module, and each module contains one hard drive. A K2 Solo Media Server contains 2 disk modules. Disk modules plug into the drive cable assembly.

Data is written or “striped” across the disks in a continuous fashion, which makes the disks a “stripe group”. This stripe group appears as the V: drive to the Windows operating system. The V: drive stores media. It also stores media file system, database, and configuration information.

Disks are configured as RAID 0, so you can not remove and replace a disk module while the K2 Solo Media Server is operational. If a disk fails, you lose all media.

Refer to [“Disk controller board removal” on page 93](#) for procedures.

### CompactFlash boot media

The CompactFlash boot media contains the system drive, also known as the C: drive. The C: drive contains application and operating system files. The CompactFlash media is hosted by the disk controller board.

Refer to [“CompactFlash boot media removal” on page 91](#) for procedures.

## Power supply module

The K2 Solo Media Server has one power supply. You can not remove and replace the power supply while the K2 Solo Media Server is operational. The power supply has a fan with automatic speed control. The power supply has protection for over voltage, over current, and short circuits.

Refer to [“Power supply removal” on page 99](#) for procedures.

## Codec module

The K2 Solo Media Server has one codec module. The codec module hosts two media input/output channels. The codec module is oriented horizontally across the rear of the K2 Solo Media Server chassis. It provides the majority of the K2 Solo Media Server’s media-related input and output connectors on the rear panel. The codec module plugs into the midplane board.

A codec module can host a pair of codec option cards. It is not allowed to have a codec module host just one codec option card. There are two types of codec option cards, as follows:

- MPEG-2 encoder card
- AVC-Intra codec card

A codec module that hosts codec option cards must have either two MPEG-2 encoder cards or two AVC-Intra codec cards. It is not allowed to have one MPEG-2 encoder card and one AVC-Intra codec card on the same codec module.

Check *K2 Release Notes* for support of MPEG-2 and AVC-Intra.

Refer to [“Unfasten and disconnect cables” on page 97](#) for procedures.

## MPEG-2 encoder card

A pair of MPEG-2 encoder cards is a codec module option. A codec module can host two MPEG-2 encoder cards, one for each of the codec module’s channels. An MPEG-2 encoder card provides MPEG-2 encode functionality to a channel. MPEG-2 decode functionality is a standard feature and does not require a dedicated card.

Refer to [“Codec option card removal” on page 90](#) for procedures.

## AVC-Intra codec card

A pair of AVC-Intra codec cards is a codec module option. A codec module can host two AVC-Intra codec cards, one for each of the codec module’s channels. An AVC-Intra codec card provides AVC-Intra encode and decode functionality to a channel.

Refer to [“Codec option card removal” on page 90](#) for procedures.



## **Disk controller board**

The disk controller board provides the RAID functionality for the internal disks and reports the status of the chassis fans. It controls status LEDs and the front bezel Power and Service LEDs. It hosts the CompactFlash boot media. It is mounted in the front of the unit and plugs into the midplane board.

Refer to [“Disk controller board removal” on page 93](#) for procedures.

## **Front interconnect board**

The front interconnect board provides front interface functionality. It hosts the front USB ports, the Express Card, and the standby switch. It is mounted in the front of the unit and plugs into the midplane board.

Refer to [“Front interconnect board removal” on page 93](#) for procedures.

## **Midplane board**

The midplane board provides connections for the rear modules. The disk controller board and the front interconnect board also plug into the midplane board. It is mounted in the center of the unit.

Refer to [“Midplane board removal” on page 101](#) for procedures.

## **Carrier module**

The carrier module provides the functionality typically associated with a motherboard in a PC. It hosts the CPU and provides rear panel connections for Gigabit Ethernet, USB, VGA, and IEEE 1394a (Firewire). The IEEE 1394a port is for debugging purposes only. It is not supported for customer use. Do not attempt to configure or otherwise use this port. The carrier module also provides a GPI connection and connections for reference.

Refer to [“Carrier module removal” on page 99](#) for procedures.

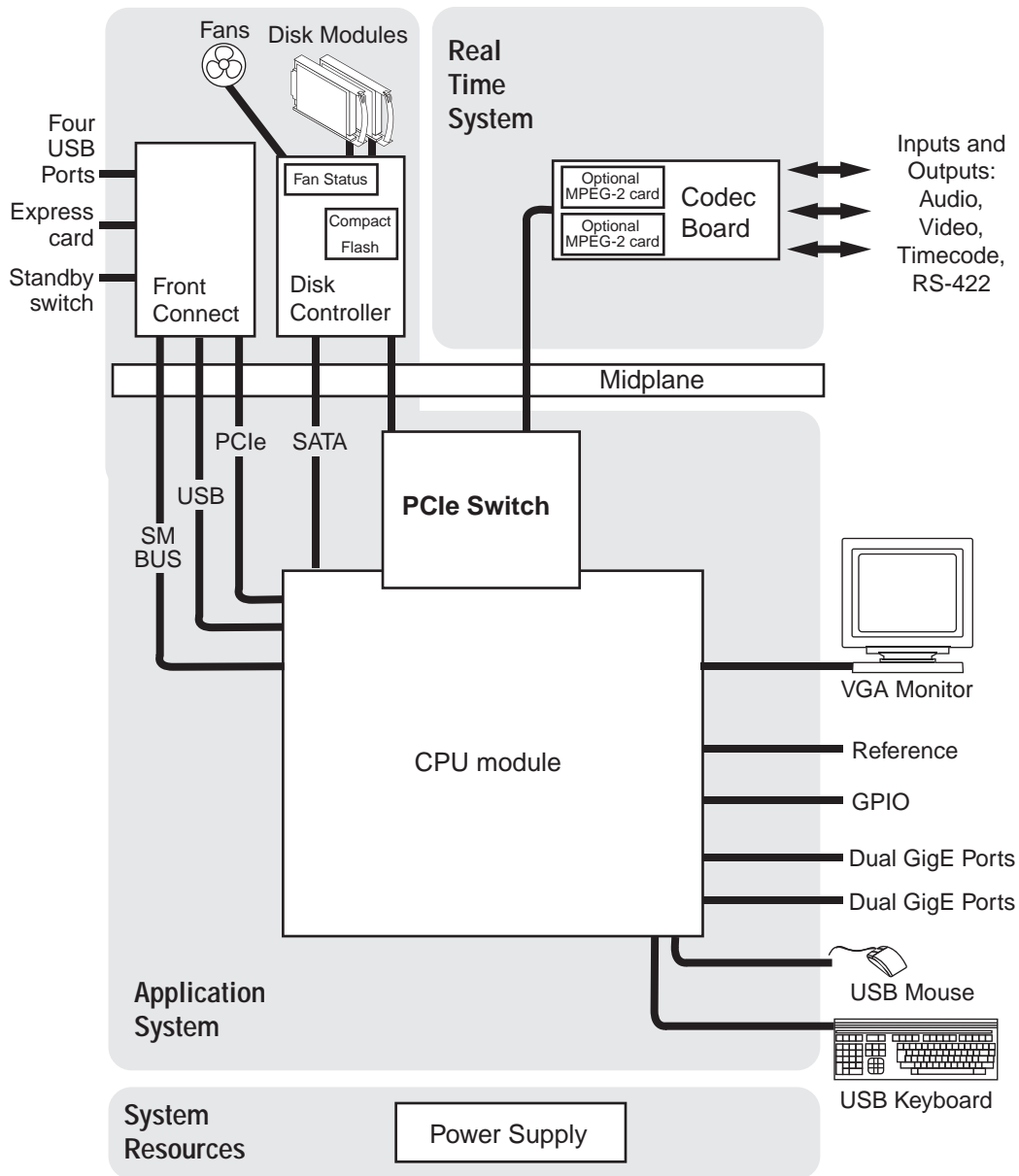
## **Drive cable assembly**

The drive cable assembly includes the disk cables and a bracket for mounting drive connectors in the chassis.

Refer to [“Drive cable assembly removal” on page 101](#) for procedures.

## System Overview

The K2 Solo Media Server is a PCIe bus-based Windows computer with extensive enhancements to provide the video disk recorder functionality. This section explains the major architectural blocks.

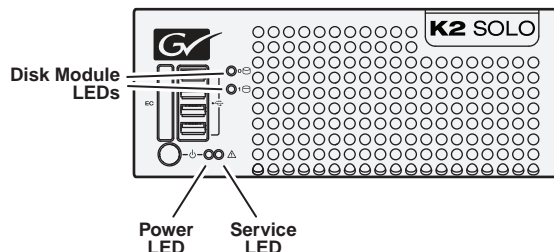


## Status indicators

The following sections describe the visual and audible indicators that communicate the current operating status and system health of the K2 Solo Media Server.

### Front panel indicators

The following indicators are visible from the front panel view.



#### Power LED

The Power LED indicates status as follows::

LED behavior	Status Condition
Off	The standby switch is set to Off and the K2 Solo Media Server is not operational.
Green steady on	The standby switch is set to On and the K2 Solo Media Server is either in the startup process or has completed the startup process and is operational.



**WARNING:** *The power standby switch does not turn off power to the system. To turn power off both power supplies must be disconnected from the power source.*

#### Service LED

The following table explains the status conditions indicated by the different Service LED behaviors. If two or more status conditions occur simultaneously, the LED displays the behavior for the highest priority condition.

LED behavior	Status Condition	Priority
Flashing pattern alternating Yellow/Green/Red/Off twice a second	Identify — The K2 Solo Media Server is being directed to identify itself by NetCentral or some other application.	1
Solid Red	Global failure — The K2 Solo Media Server system software has detected a critical error or failure that impacts record/play operations.	2
Solid Yellow	Warning — The K2 Solo Media Server system software has detected a problem that requires attention but does not immediately impact record/play operations.	3

LED behavior	Status Condition	Priority
Flashing Yellow pattern three times a second.	Drive failure — An internal RAID drive has failed.	4
Flashing pattern alternating Yellow/Green once a second.	Drive rebuild — An internal RAID drive is rebuilding.	5
Off	Normal — The K2 Solo Media Server is healthy and operating normally.	5

### Disk module LEDs

Each disk module has an LED that indicates status. The LEDs are located on the front bezel. The following table explains the status conditions indicated by the different LED behaviors. If two or more status conditions occur simultaneously, the LED displays the behavior for the highest priority condition. Priority number 1 is the highest priority

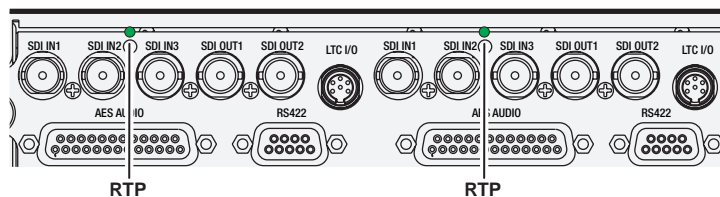
LED behavior	Status Condition	Priority
Amber flashing pattern.	Identify — The drive is being directed to identify itself by Storage Utility or some other application.	1
Green flashing pattern twice a second.	Rebuild — The RAID controller has marked the drive as rebuilding.	3
Red ON solid.	Fault — The RAID controller has marked the drive as faulty.	3
Amber ON solid.	Offline — The drive is unbound.	3
Green flashing pattern ten times a second.	Normal drive activity — The drive is healthy and disk access is underway.	3
Green ON solid	Normal drive activity — The drive is healthy and no disk access is currently underway.	3
OFF	No drive — Drive is not present or is not fully engaged in slot.	—

### Rear panel indicators

The following indicators report status from the rear panel view.

#### Codec board indicator

Each channel has a green/red LED that indicates the status of the Real Time Processor (RTP).

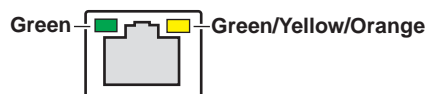


Interpret the RTP LED as follows:

LED behavior	Status condition
Green flashing at approximately 1 second intervals	RTP is up and connected to the host
Green flashing at greater than 1 second intervals	RTP is not connected to the host.
Red	RTP error condition. Real Time OS is not running.
Off	Real Time OS is not running.

### LAN connector indicator codes

The motherboard has four RJ-45 LAN connectors that include integrated status LEDs. The LEDs are oriented as follows:



The meanings of the LED states are described in the following table:

LED	LED state	Status Condition
Green	Green On	The adapter is connected to a valid link partner
	Green flashing	Data activity
	Off	No link
Green/Yellow/ Orange	Off	10 Mbps
	Green	100 Mbps
	Yellow	10000 Mbps
	Orange flashing	Identify

If a LAN connector is faulty, you must replace the carrier module.

### Power supply indicators

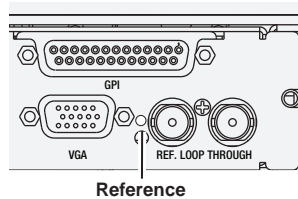
An indicator of power supply operation is the audible fan noise.

The Service LED on the front of the K2 Solo Media Server also indicates power supply status. Refer to [“Service LED” on page 35](#).

If the power source and the power cord are OK yet there is still a power supply problem, refer to [“Power supply problems” on page 78](#).

### Reference indicator

There is a small hole in the carrier module next to the “REF. LOOP THROUGH” BNC connectors.



Through this hole a LED is visible. When the LED is lit, the reference signal is present and locked.

### System beep codes

When you start up the K2 Solo Media Server by pressing the standby switch or by doing a Windows operating system restart, the CPU module might emit two short beeps. Otherwise, if there are no errors present, the K2 Solo Media Server does not emit any audible beeps.

When an error occurs during Power On Self Test (POST), the BIOS displays a POST code that describes the problem. The BIOS might also issue one or more beeps to signal the problem. This indicates a serious error and it is likely that the carrier module must be replaced. Contact Grass Valley Support.

# Chapter **2**

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## **System Messages**

Topics in this section include the following:

- [“About system messages” on page 40](#)
- [“Critical system startup messages” on page 41](#)
- [“Viewing AppCenter system status messages” on page 41](#)

## About system messages

The following messages are displayed to indicate K2 Solo Media Server status:

- Normal BIOS messages — These messages can be observed on a locally connected VGA monitor during normal startup processes
- BIOS POST error messages — If there is a problem these messages are displayed on a locally connected VGA monitor. During the Power On Self Test (POST), the BIOS checks for problems and displays these messages.
- K2 Solo Media Server startup messages — As AppCenter opens the K2 Solo Media Server determines if system health is adequate by checking critical subsystems. A dialog box is displayed that indicates progress and displays messages. Refer to [“Critical system startup messages” on page 41](#).
- Status bar and StatusPane messages — During normal operation AppCenter displays system status messages on the status bar. From the status bar you can open the StatusPane to see both current and previous messages. You can observe these messages in AppCenter on a locally connected VGA monitor or on a network connected control point PC. Refer to [“Viewing AppCenter system status messages” on page 41](#).
- Storage Utility messages — While you are using Storage Utility, pop-up message boxes inform you of the current status of the storage system.
- NetCentral messages — If you are monitoring the K2 Solo Media Server with NetCentral, the NetCentral interface displays a variety of messages and other status indicators. Refer to the NetCentral Help menu for a complete list of all the messages that a monitored device can send.



## Critical system startup messages

The following messages appear in the AppCenter system startup message box as critical subsystems are checked during K2 Solo Media Server startup processes. If a critical failure is detected, the K2 Solo Media Server is rendered inoperable and the failure message appears.

Critical subsystem check messages	Failure messages
System Startup	Startup error
	Missing or bad hardware
	A real time processor is not functioning correctly
Checking hardware...	Hardware fault
Checking media disks...	One or more media disks failed to initialize
	Missing or bad hardware
	Missing or bad database
Checking file system...	No file system is running
Checking database...	Database fault
Checking real-time system status...	A real-time system failed to initialize
Updating configuration...	Failed to synchronize configurations
Starting services...	Unable to communicate with <service name>

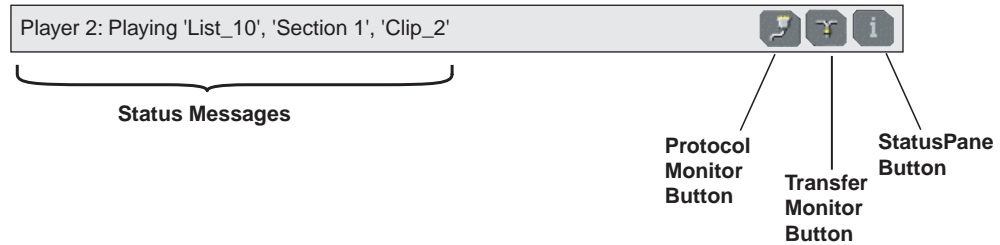
## Viewing AppCenter system status messages

System status messages are displayed in the AppCenter status bar. There are two types of system status messages, as follows:

- Channel status messages — In normal operation, this type of message displays the current operating status of the selected channel.
- System error messages — If a problem develops with the system software or a hardware subsystem, this type of message is displayed for approximately 5 seconds. Afterward, the display returns to the channel status message and the error message is written to the status log file. When a message is written to the status log, a *Status Icon* indicates the severity of the message.

## Viewing system status messages

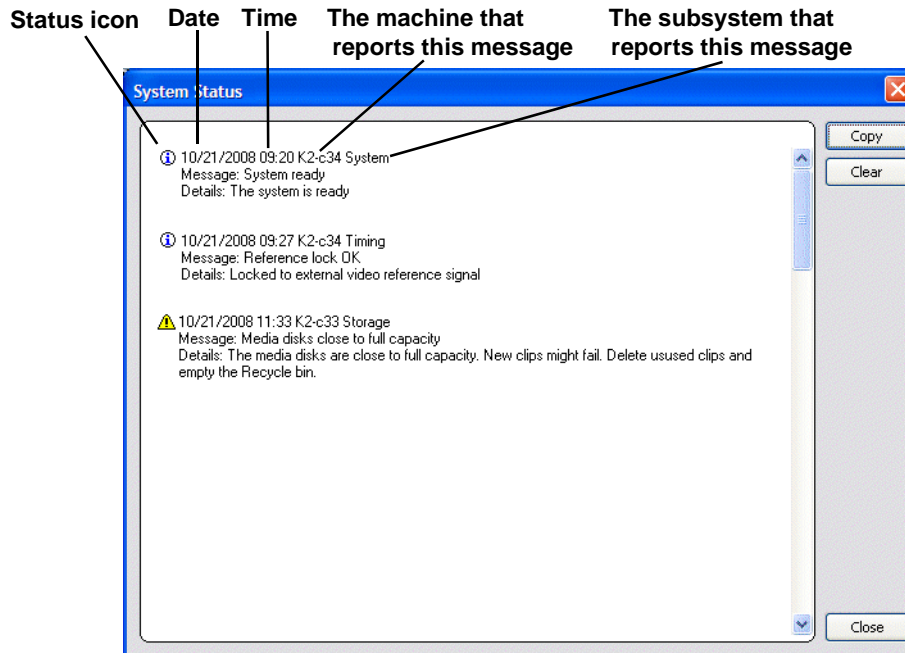
System status messages appear in the AppCenter status bar, which is located across the bottom of the AppCenter window, and consists of a message area, several tool buttons, and a status icon. The button icons appear only when the related function is active. In the position of the StatusPane button, status icons appear.



The status icon changes depending on the status of the current status message.

Icon	Name	Description
	Information	A recent information message is present.
	Warning	There is at least one warning message, and no alert messages.
	Alert	There is at least one uncleared alert message.

Current and previous system status messages can be viewed in the StatusPane. To open the StatusPane, click **Help | System Status**.



The StatusPane is used to view detailed system messages including status, warning, and error messages. System status messages provide status icons and a description of the status event reported by the message. If there is a problem, a corrective action is indicated. Use these messages along with [Chapter 4, Troubleshooting problems](#) to determine if a service procedure is necessary.

If you have a remote AppCenter Channel Suite with channels from multiple K2 systems, the messages from the different machines are combined in the StatusPane that you view from the Channel Suite. To help you determine which machine is generating a message, each message lists the machine name.

## Copying StatusPane messages to the clip board

1. Select the message or messages in the StatusPane.
2. Click **Copy**.

After copying the message, it can be pasted using standard Windows techniques.

## Clearing messages

Clearing messages from the StatusPane removes them from the logging database and the StatusPane. This also clears the state of the subsystem indicators so they no longer display the alert and warning symbols.

1. Open the StatusPane, then click **Clear**.
2. When a message prompts you to confirm, click **Yes**.

All messages are removed from the StatusPane and logging database.



---

## Service Procedures

Topics in this section include the following:

- “About the write filter” on page 45
- “Enabling the write filter” on page 45
- “Disabling the write filter” on page 46
- “Committing a file to disk with write filter enabled” on page 46
- “Exporting log files” on page 47
- “Replacing a RAID 0 drive” on page 49
- “About networking” on page 49
- “Restoring network configuration” on page 50
- “Checking services” on page 60
- “Checking pre-installed software” on page 61
- “Making CMOS settings” on page 62
- “Using recovery images” on page 62
- “Using diagnostic tools” on page 67

### About the write filter

The K2 Solo Media Server has a file-based write filter, which is a feature of the Windows embedded operating system. With the write filter enabled, files can be created, modified, and deleted, but these changes are held in a memory cache. When the K2 Solo Media Server restarts, these changes are lost and the K2 Solo Media Server returns to its original state. This protects the K2 Solo Media Server from changes and increases on-air reliability. For any system configuration change the write filter must be disabled otherwise changes are lost at the next restart.

Some directories, such as *C:\logs*, *C:\Profile\config*, and *C:\Profile\ChannelSuites*, are excluded from write filter protection, so that channel configuration and logs are saved. Do not attempt to alter this list of excluded directories. If you suspect that write filter configuration has been altered, use the recovery image process to restore to the default configuration.

To enable the write filter, the K2 Solo Media Server must be restarted. Likewise, to disable the write filter, the K2 Solo Media Server must be restarted. You can enable/disable the write filter remotely using the SiteConfig lock/unlock feature on one K2 Solo Media Server at a time or on a group of K2 Solo Media Servers all at once. You can also enable/disable the write filter from a local K2 Solo Media Server.

### Enabling the write filter

Prerequisite:

- K2 software must be installed on the K2 Solo Media Server.
1. If you have not already done so, log on to the K2 Solo Media Server with administrator privileges.
  2. From the Windows desktop click **Start | All Programs | Grass Valley | Write Filter Utility**.  
FBWF Manager opens.
  3. Under Filter Settings, set Filter to **Enable**.
  4. Under Protected Volumes, set C: to **Protected**.
  5. Click **OK**.
  6. When prompted, restart the K2 Solo Media Server.

## Disabling the write filter

Prerequisite:

- K2 software must be installed on the K2 Solo Media Server.
1. If you have not already done so, log on to the K2 Solo Media Server with administrator privileges.
  2. From the Windows desktop click **Start | All Programs | Grass Valley | Write Filter Utility**.  
FBWF Manager opens.
  3. Under Filter Settings, set Filter to **Disable**.
  4. Click **OK**.
  5. When prompted, restart the K2 Solo Media Server.

## Committing a file to disk with write filter enabled

Prerequisite:

- K2 software must be installed on the K2 Solo Media Server.

You can over-ride the write filter for an individual file and permanently save the file to disk.

1. If you have not already done so, log on to the K2 Solo Media Server with administrator privileges.
2. From the Windows desktop click **Start | All Programs | Grass Valley | Write Filter Utility**.  
FBWF Manager opens.
3. Under Exclusions, click **Browse**.
4. Browse to the file that you want to save permanently, select the file and click **OK**.  
Files in directories that exist on the CompactFlash can be created. New directories cannot be created. You cannot commit deletions of files.

5. Click **Commit**.
6. Click **OK**.

## Exporting log files

The procedures in this section describe how to export log files from the K2 Solo Media Server. The log files can include the following:

- All applications messages
- The Windows Event Log
- Logs from the media database
- Dr. Watson messages.

The exported log files are combined in a ZIP file. The ZIP file can be sent to Grass Valley product support where they can analyze the logs to determine the operational status of your K2 Solo Media Server.

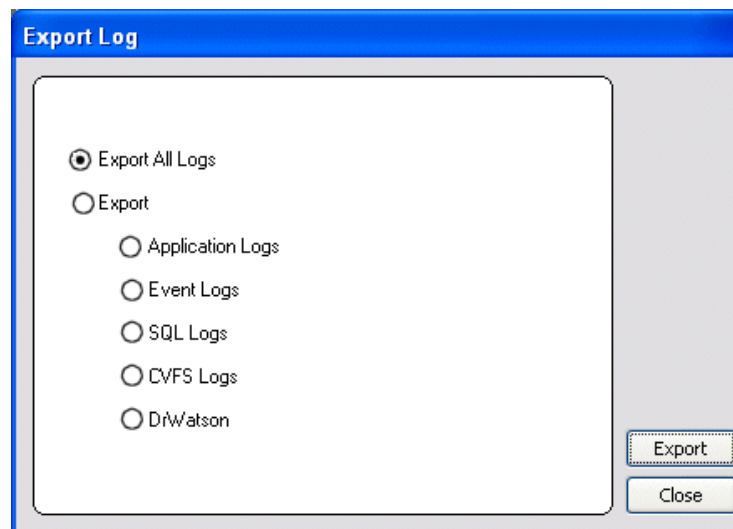
**NOTE:** *ExportLog does not export StatusPane messages. To capture StatusPane messages, refer to the “Copying StatusPane messages to the clip board” on page 43.*

When you export the log zip file, you must either export it to a location that is not protected by the K2 Solo Media Server write filter, or else disable the write filter before exporting.

Use one of the following procedures to export the logs.

### Exporting log files from AppCenter workstation

1. In AppCenter workstation click **System | Export Log**. The Export Log dialog box opens.
2. Click the **Logs** tab.



3. Select the logs to export.
4. Click the **Destination** tab.



5. Browse to a location for saving the log file.
6. Name the log file.
7. Click **Export**. A progress bar appears.
8. When the export process is complete, and message confirms success. Click **OK** and close the Export Log dialog box to continue.
9. Find the log file at the specified location.
10. If you disabled the write filter, enable it before continuing.

### Exporting log files using the Windows command line

This procedure allows you to export log files even if AppCenter does not start properly. It uses the Windows command prompt.

1. If you have not already done so, connect a mouse and keyboard to the K2 client system.
2. In the Windows task bar, select **Start | Run**.
3. Type the following in the Run dialog box, then click **OK**.  
`c:\profile\exportlog`  
The ExportLog dialog box is displayed.
4. Continue with the procedure [“Exporting log files from AppCenter workstation” on page 47](#), starting with step 2.



## Replacing a RAID 0 drive

A K2 Solo Media Server's disk modules are configured as RAID 0, so when one drive fails, all media is lost. To replace a RAID 0 drive, do the following:

1. If you have not already done so, disable the write filter.
2. Unbind the LUN that has the failed drive.
3. Remove the failed drive from the K2 Solo Media Server chassis.
4. Insert the replacement drive in the K2 Solo Media Server chassis.
5. Restart the K2 Solo Media Server.
6. Using Storage Utility on the K2 Solo Media Server, bind disks as RAID 0.
7. Restart the K2 Solo Media Server.
8. Using Storage Utility on the K2 Solo Media Server, make a new file system.  
Restart as prompted. The write filter is enabled on restart.

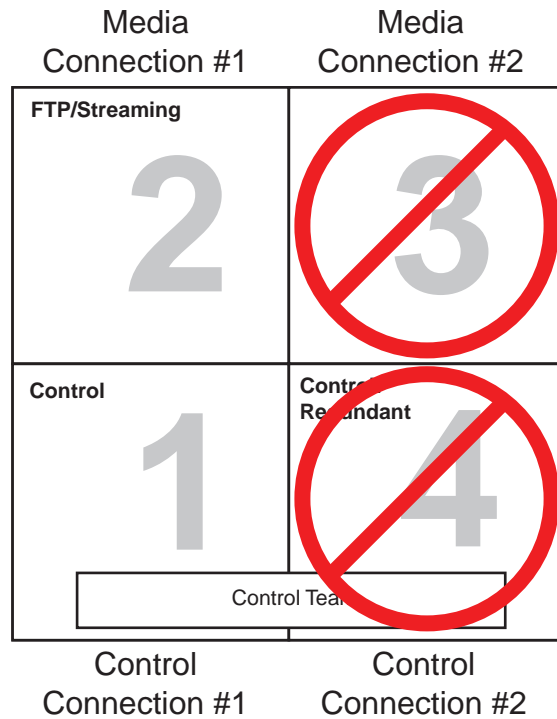
Always use the Storage Utility to physically identify the failed drive. To identify a drive, in Storage Utility right-click the drive and select **Identify**. This causes the disk lights to flash.

Refer to the *K2 System Guide* for Storage Utility procedures.

Refer to [“Disk controller board removal” on page 93](#) for the mechanical procedure for removing and inserting a drive.

## About networking

When you receive a K2 Solo Media Server from the factory, it has a specific network configuration, including a loopback adapter and two of the four Gigabit Ethernet ports configured as a teamed pair. The Gigabit Ethernet ports, as viewed when looking at the rear panel, are represented in the following illustration.



## Restoring network configuration

When you restore a K2 Solo Media Server from its system specific image provided on the Recovery USB Drive, network configuration is also restored to the factory default settings. This is the recommended method of restoring network configuration. However, if for some other reason you must configure network settings manually, use the following procedures to restore the default network configuration:

- “Install the loop-back adapter”
- “Identify adapters”
- “Set Rx/Tx Descriptors Value”
- “Create the Control Team”
- “Name team and loopback”
- “Reorder adapters”
- “Set power management settings”

### Install the loop-back adapter

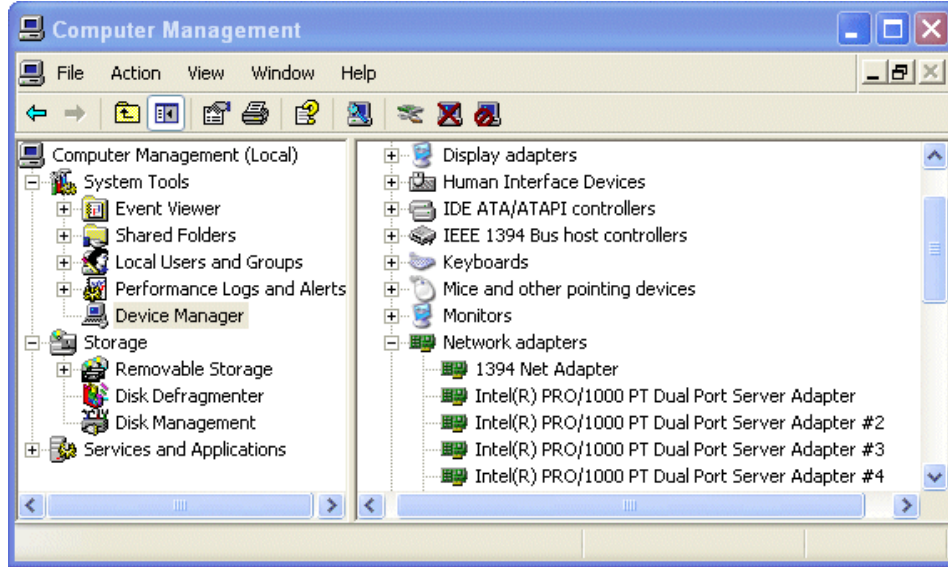
1. On the Windows desktop right-click **My Network Places** and select **Properties**.  
The Network Connections window opens.
2. Check the list of adapters for an adapter with “Loopback” in its name and proceed as follows:

- If “Loopback” is installed, skip this procedure.
  - If “Loopback” is not installed, continue with this procedure.
3. If you have not already done so, disable the write filter.
  4. In the Windows Control Panel, open **Add Hardware** and then click **Next**.
  5. Click **Yes, I have already connected the hardware**, and then click **Next**.
  6. At the bottom of the list, click **Add a new hardware device**, and then click **Next**.
  7. Click **Install the hardware that I manually select from a list**, and then click **Next**.
  8. Click **Network adapters**, and then click **Next**.
  9. In the Manufacturer box, click **Microsoft**.
  10. In the Network Adapter box, click **Microsoft Loopback Adapter**, and then click **Next**.
  11. Click **Next**, then **Finish**.
  12. In Control Panel, go to **Network Connections**.
  13. Find the connection that reports itself in the Device Name column as the loopback adapter. Right-click on this icon and rename the connection to `Loopback`.
  14. Right-click on the Loopback icon and select **Properties**.
  15. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.
  16. Click **Use the following IP address** and set the address to `192.168.200.200` and set the subnet mask to `255.255.255.0`.
- NOTE: The Microsoft Loopback Adapter must have its IP address set to 192.168.200.200. If a different IP address is used the stand-alone storage K2 Solo Media Server can not access its own media file system.**
17. Click **OK** and **Close** to exit.
  18. Proceed as follows:
    - If you have no additional network configuration to do, reorder adapters now. Refer to [“Reorder adapters” on page 59](#). Then enable the write filter.
    - If you have additional network configuration tasks to do, do not reorder adapters now. Continue with the next task [“Identify adapters”](#).

## Identify adapters

On some K2 Solo Media Servers, it is possible that the Microsoft Windows operating system has enumerated the “Intel® PRO/1000 PT Dual Port Server Adapter...” names in an unpredictable sequence. You must identify adapters by their location rather than by the enumeration assigned by the Windows operating system and verify or modify the adapter name as necessary.

1. Open Device Manager as follows:
  - a. On the Windows desktop, right-click **K2 Solo Media Server (My Computer)** and select **Manage**. The Computer Management window opens.



b. In the left pane select **Device Manager**.

Device Manager opens in the right pane.

2. In Device Manager, expand **Network Adapters**.

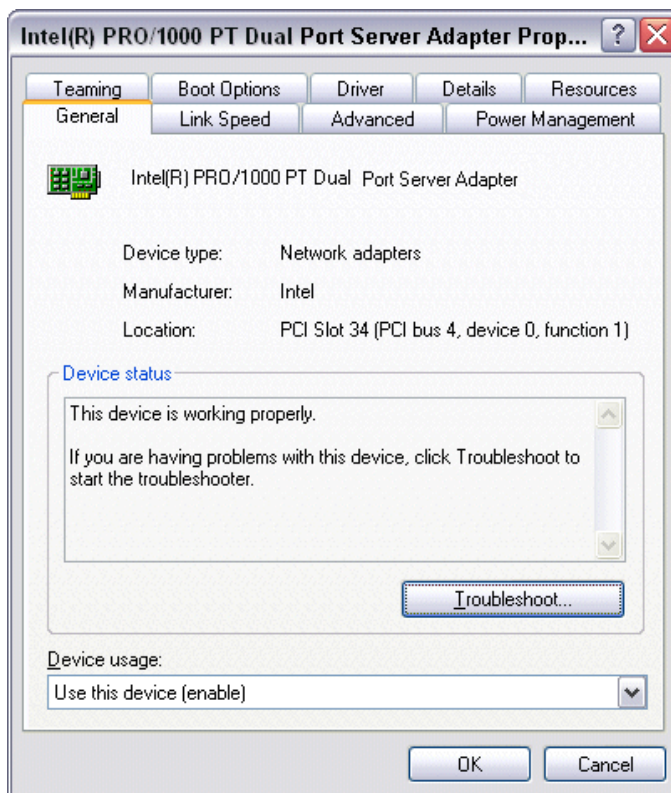
3. Verify that there are four adapters listed, named “Intel® PRO/1000 PT Dual Port Server Adapter...”, with an enumerator at the end of the name.

The 1394 adapter is for the IEEE 1394a port on the rear panel. This port is for debugging purposes only. It is not supported for customer use. Do not attempt to configure or otherwise use this port.

4. For each adapter shown, identify its location, as follows:

a. Under Network adapters, right-click one of the adapters and select **Properties**.

The Properties dialog box opens.



- b. On the **General** tab and take note of Location displayed within the parentheses. You must make a written record of the “Intel® PRO/1000 PT Dual Port Server Adapter...” enumerator that the Windows operating system has assigned to this location (PCI bus X, device 0, function X). Use the table below and fill in the blanks:

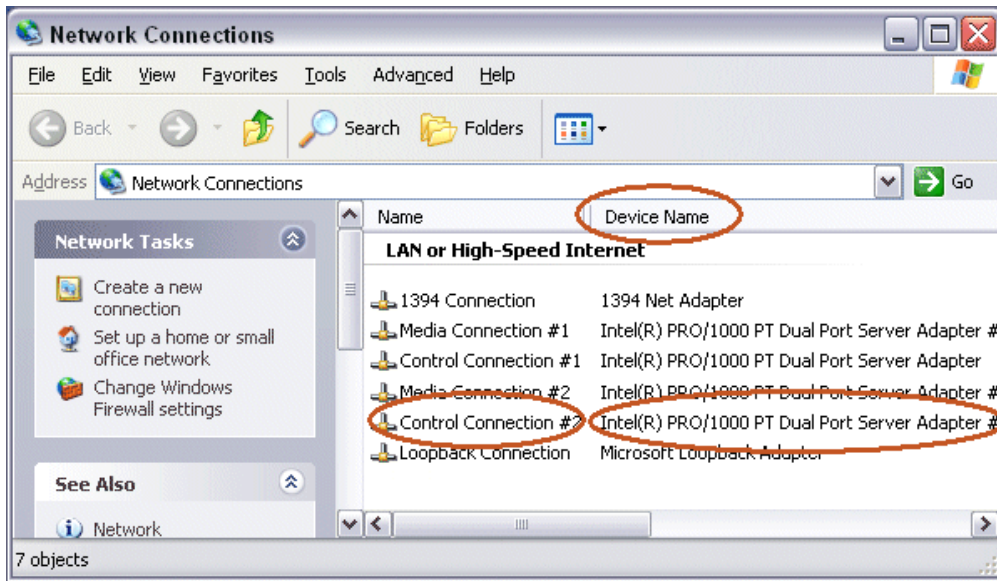
On this K2 Solo Media Server, Windows has assigned this adapter name...	To this location:
Intel® PRO/1000 PT Dual Port Server Adapter	PCI bus ____, device 0, function ____
Intel® PRO/1000 PT Dual Port Server Adapter #2	PCI bus ____, device 0, function ____
Intel® PRO/1000 PT Dual Port Server Adapter #3	PCI bus ____, device 0, function ____
Intel® PRO/1000 PT Dual Port Server Adapter #4	PCI bus ____, device 0, function ____

- Repeat the previous steps until you have a determined which “Intel® PRO/1000 PT Dual Port Server Adapter...” name goes to which (PCI bus X, device 0, function X) location.
- Continue with the next procedure “Name adapters”.

## Name adapters

1. If you have not already done so, disable the write filter.
2. If you have not already done so, on the Windows desktop right-click **My Network Places** and select **Properties**.

The Network Connections window opens.



In the Device Name column you see the adapter names and enumerators that the Windows operating system has assigned to adapters.

3. Determine which adapter names in the Device name column are assigned to which (PCI bus X, device 0, function X) location.
4. Reconcile the locations assigned to the adapter names with the names as currently configured in the Name column.

The required mapping of names to locations is specified in the following table:

The adapter name (as displayed in the Device Name column) that is assigned to this location...	Must be named as follows:
PCI bus 4, device 0, function 1	Control Connection #1
PCI bus 4, device 0, function 0	Media Connection #1
PCI bus 3, device 0, function 0	Media Connection # 2
PCI bus 3, device 0, function 1	Control Connection #2

5. Proceed as follows:
  - If all the names on this K2 Solo Media Server are configured correctly to locations, skip ahead to the last step of this procedure.
  - If names on this K2 Solo Media Server are not configured correctly to locations, for each adapter name incorrectly configured, complete the remaining steps of

this procedure.

6. Select the name in the Name column.
7. Select **File | Rename** to enter rename mode.
8. Type the name required for the location.
9. If continuing with network configuration, proceed with the next procedure [“Set Rx/Tx Descriptors Value”](#). If network configuration is complete, enable the write filter.

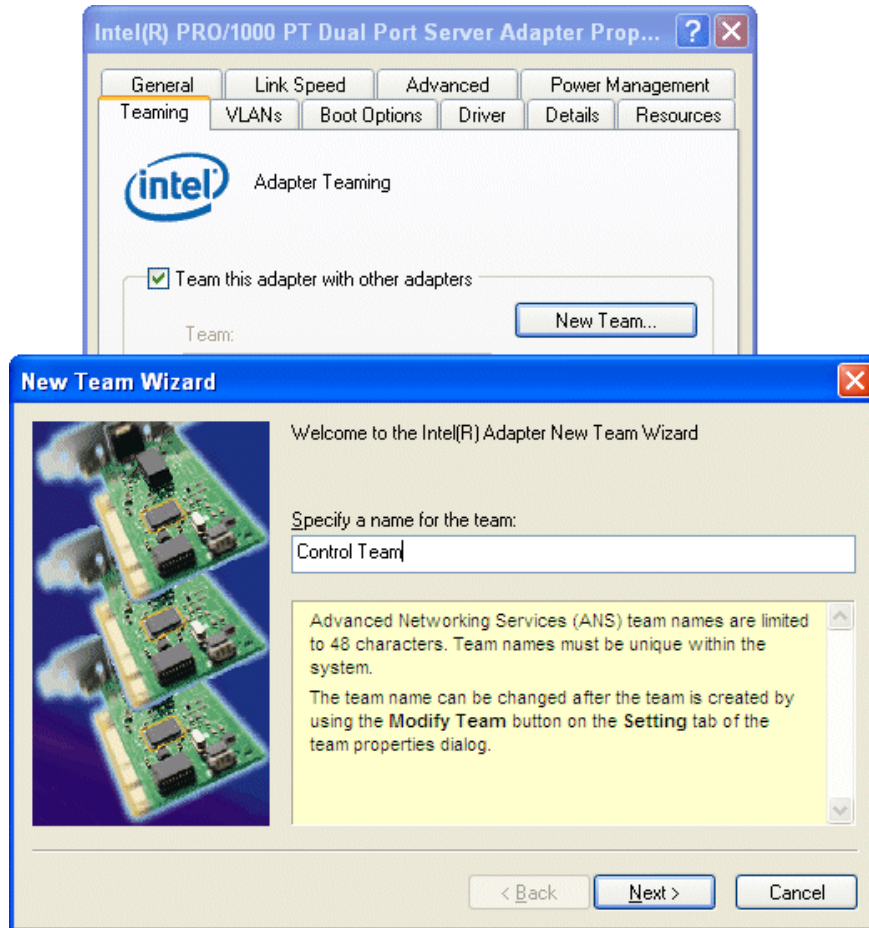
## Set Rx/Tx Descriptors Value

1. If you have not already done so, disable the write filter.
2. In Device Manager, highlight and right-click the **Intel® PRO/1000 PT Dual Port Server Adapter**.
3. Select **Properties**. The Properties dialog box opens.
4. Click **Advanced** tab.
5. In the Settings list, select **Performance Options**, then click the **Properties** button. The Performance Options dialog box opens.
6. In the Property list, select **Receive Descriptors**.
7. In the Values field, if not already set correctly, use the up/down arrows to set the value to **1024**. If 1024 is not available, select a different entry in the settings list, then select back to Receive Descriptors. This resets the values available in the Values field.
8. In the Settings list, select **Transmit Descriptors**.
9. In the Values field, set the value to **1024**.
10. Click **OK** to close dialog boxes and save settings.
11. Repeat this procedure on the remaining Ethernet adapters.
12. If continuing with network configuration, proceed with the next procedure [“Create the Control Team”](#). If network configuration is complete, enable the write filter.

## Create the Control Team

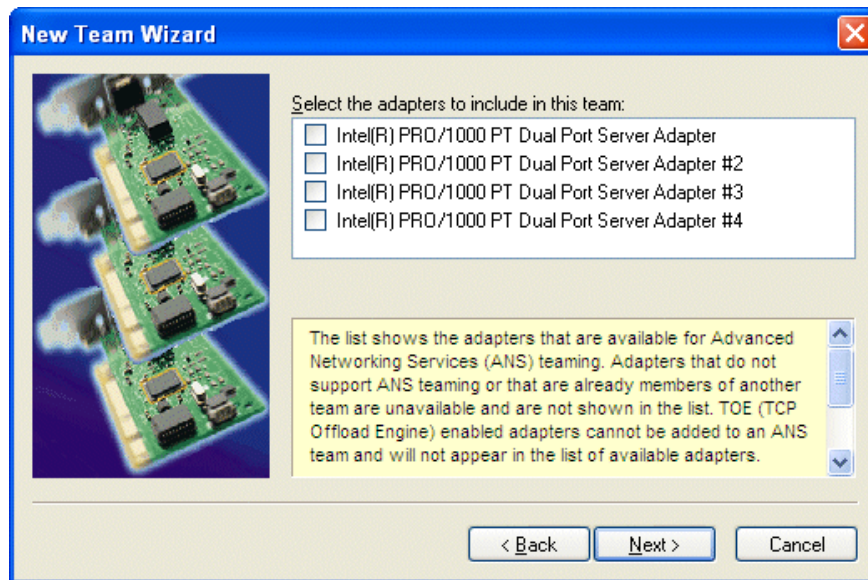
*NOTE: Team control ports only. Do not team media ports.*

1. If you have not already done so, disable the write filter.
2. In Device Manager, right-click the adapter name that on this K2 Solo Media Server is assigned to location PCI bus 4, device 0, function 1.
3. Select **Properties**  
The Properties dialog box opens.
4. Select the **Teaming** tab.

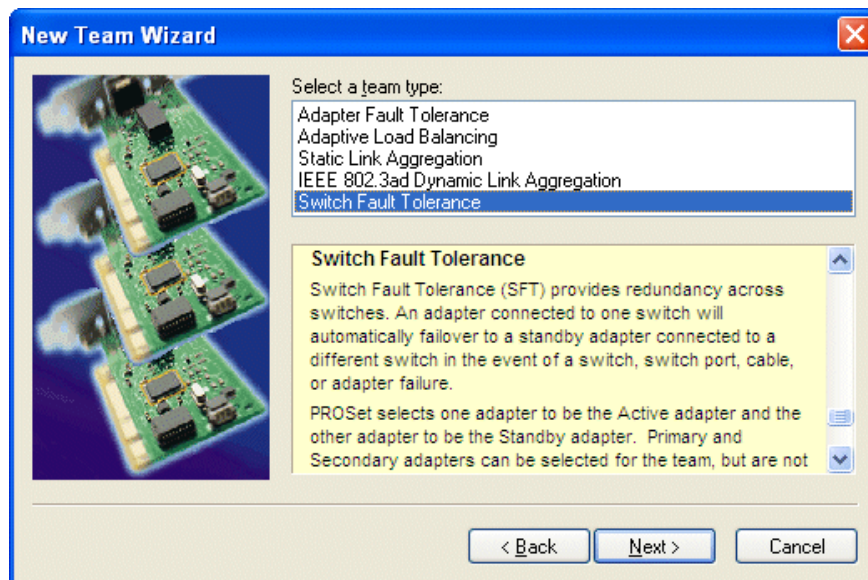


5. Select **Team this adapter with other adapters**, then click **New Team**. The New Team Wizard opens.
6. Enter Control Team.  
Click **Next**.





7. Select the check box for the adapter name that maps to Control Connection #1 (PCI bus 4, device 0, function 1) and for the adapter name that maps to Control Connection #2 (PCI bus 3, device 0, function 1). Click **Next**.

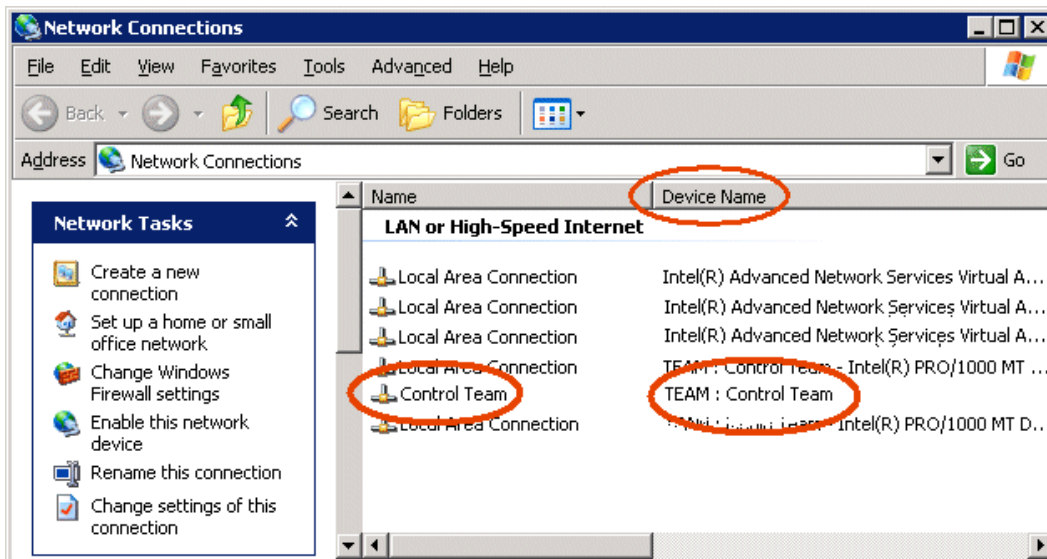


8. Select **Switch Fault Tolerance**. Click **Next**.
9. Click **Finish** and wait a few seconds for the adapters to be teamed.
10. Open the Modify Team dialog box as follows:
  - a. In Device Manager | Network Adapters, right-click **Control Team** and select **Properties**. The Properties dialog box opens.

- b. Select the **Settings** tab.
  - c. Click **Modify Team**. A dialog box opens.
11. On the **Adapters** tab, do the following:
    - a. Select the top entry, which is the adapter name that maps to Control Connection #1 (PCI bus 4, device 0, function 1) and click **Set Primary**.
    - b. Select the adapter name that maps to Control Connection #2 (PCI bus 3, device 0, function 1) and click **Set Secondary**.
  12. Click **OK** and **OK** and to close dialog boxes.
  13. Restart the K2 Solo Media Server.
  14. If continuing with network configuration, proceed with the next procedure “[Name team and loopback](#)”. If network configuration is complete, enable the write filter.

## Name team and loopback

1. If you have not already done so, disable the write filter.
2. On the Windows desktop right-click **My Network Places** and select **Properties**. The Network Connections window opens.



3. For the Control Team and the loopback, select adapter names in the “Device Name” column and rename them as follows:
  - a. Select the adapter name.
  - b. Select **File | Rename** to enter rename mode.
  - c. Type the name, as specified in the following table:

In the Device Name column, select this adapter name...	And rename it as follows:
TEAM : Control Team	Control Team
Microsoft Loopback Adapter	Loopback

4. Do one of the following:
  - If you intend to use SiteConfig for device discovery and IP address configuration, you do not need to set an IP address for the Control Team at this time. Skip ahead to the last step in this procedure.
  - If you are not using SiteConfig, set an IP address for the Control Team at this time. Use standard Windows procedures.

Do not set IP addresses for the two Media Connections.
5. If continuing with network configuration, proceed with the next procedure [“Reorder adapters”](#). If network configuration is complete, enable the write filter.

## Reorder adapters

1. If you have not already done so, disable the write filter.
2. On the Windows desktop right-click **My Network Places** and select **Properties**.  
The Network Connections window opens.
3. On the menu bar at the top of the window, select **Advanced**, then **Advanced Settings...**
4. On the **Adapters and Bindings** tab order adapters as follows:

K2 Solo Media Server Adapter Order
Loopback
Control Team
Media Connection #1
Media Connection #2
Control Connection #1
Control Connection #2
1394 Connection

5. Click **OK** to close Advanced settings and accept the changes.
6. Close the Network Properties window.
7. If continuing with network configuration, proceed with the next procedure [“Set power management settings”](#). If network configuration is complete, enable the write filter.

## Set power management settings

1. If you have not already done so, disable the write filter.

2. On the Windows desktop right-click **My Network Places** and select **Properties**.  
The Network Connections window opens.
3. Right-click any network connection that is not the Control Team and select **Properties**.  
The ...Connection Properties dialog box opens.
4. Click **Configure**.  
The ...Properties dialog box opens.
5. On the **Power Management** tab, uncheck all checkboxes, if they are not already unchecked.
6. On the ...Properties dialog box, click **OK**.
7. If a "...lose connectivity..." message opens, click **Yes**.
8. Repeat these steps on the remaining network connections (except the Control Team) in the Network Connections window.
9. Enable the write filter  
The network configuration procedure is complete.

## Checking services

Depending on storage type (stand-alone or shared) of the K2 Solo Media Server, various services are turned off or on or set to different startup types. These services are automatically set by the K2 Solo Media Server software installation program and by the Status Server service whenever the K2 Solo Media Server starts up.

**NOTE: Do not manually change the way services run on a K2 Solo Media Server.**

If you suspect that services have been tampered with or for any reason are not set correctly, you can check their current settings in the Windows Services Control Panel. The table below provides the settings for the services that are critical to a correctly operating K2 Solo Media Server.

## Services on a K2 Solo Media Server

When a stand-alone K2 Solo Media Server is operating normally, in the Services control panel services appear as follows:

Service	Status	Startup Type	Comments
Grass Valley AppService	Started	Automatic	Depends on Status Server service
Grass Valley Catch Server Ingest Engine	—	Manual	Used with Capture Service features.
Grass Valley Catch Server Monitor Host	—	Manual	Used with Capture Service features.
Grass Valley File-Import Watcher Service	—	Manual	Used with the HotBin feature.

Service	Status	Startup Type	Comments
Grass Valley FTP Daemon	Started	Manual	Started by Status Server service on stand-alone storage models
Grass Valley Host File Service	Started	Automatic	—
Grass Valley K2 Config	Started	Automatic	Not used on K2 Solo Media Server
Grass Valley MegaRaid Server	—	Manual	—
Grass Valley Pathfire Bin	—	Automatic	Used with the K2 Pathfire Capture Service feature.
Grass Valley RTS Config Service	Started	Automatic	—
Grass Valley Storage Utility Host	Started	Automatic	—
Grass Valley System Status Server	Started	Automatic	At startup the Status Server service makes sure the following services are started: -AMP TCP Service -AppService -FTP Daemon
Grass Valley Transfer Queue Service	Started	Automatic	—
Metadataservice	Started	Manual	—
Microsoft iSCSI Initiator Service	Started	Automatic	Not used on K2 Solo Media Server
Sabretooth License Server	Started	Automatic	—
Sabretooth Protocol Service	Started	Automatic	—
StorNext File System File System	Started	Automatic	—
StorNext File System RPC Port Mapper	Started	Automatic	—

## Checking pre-installed software

Software is pre-installed on K2 products when you receive them from the factory. This load of pre-installed software is referred to as the “golden drive”. The following list is an example of the software pre-installed. Check *K2 Release Notes* for the most up-to-date list with version information.

If you suspect that pre-installed software is not correct, use the recovery process to re-load the software. Do not attempt to un-install, install, or repair pre-installed software without guidance from your Grass Valley Support representative.

### K2 Solo Media Server pre-installed software

- Intel Pro Software
- QuickTime
- MS XML
- .NET Framework
- MegaRAID — Do not use this utility on a K2 Solo Media Server. This utility is for use by qualified Grass Valley Service personnel only. When this utility is opened

it scans the SCSI bus and interferes with record and play operations.

- J2SE Runtime Environment
- StorNext software
- Windows PowerShell
- Windows XP Embedded

## Making CMOS settings

**NOTE:** *This procedure is intended for use by Grass Valley Service personnel or under the direct supervision of Grass Valley Service personnel.*

1. Connect keyboard, monitor, and mouse to the K2 Solo Media Server.
2. Restart the K2 Solo Media Server.
3. During the BIOS startup screen, watch the keyboard lights (capslock, numlock, etc.). When the lights flash, press **Delete** to enter Setup.
4. Press **F9** and then press **Enter**. This loads optimal default values for all the setup questions.
5. Press **F10** and then press **Enter** to save settings and restart.

## Using recovery images

Procedures in this section are as follows:

- [“About the recovery image process” on page 62](#)
- [“Creating a recovery image” on page 63](#)
- [“Restoring from a recovery image” on page 65](#)
- [“Using CompactFlash boot media for system restore” on page 66](#)

### About the recovery image process

An image of the K2 Solo Media Server system drive is provided with the product package. You can restore the K2 Solo Media Server from this image. This simplifies the process of rebuilding a system in a disaster recovery scenario.

**NOTE:** *This process is not intended as a means to backup and restore media.*

When you receive your K2 Solo Media Server new from the factory, you receive a system-specific image for that particular K2 Solo Media Server. This factory image is stored on a bootable USB Recovery Flash Drive. Also on the Recovery Flash Drive is the Acronis True Image software necessary to create and restore an image. You can find the Recovery Flash Drive in a holder behind the front bezel.

After your K2 Solo Media Server is installed, configured, and running in your system environment, you should create a new recovery image to capture settings changed from default. This “first birthday” image is the baseline recovery image for the K2 Solo Media Server in its life in your facility. There is enough space on the Recovery Flash Drive to store the first birthday image along with the factory image.

You should likewise create a new recovery image after completing any process that changes system software or data, such as a software upgrade. In this way you retain the ability to restore your K2 Solo Media Server to a recent “last known good” state.

You can also use the recovery image process on the control point PC.

***NOTE: The recovery image process is an “off-line” process. Do not attempt this process while media access is underway.***

The recovery image process that you should follow is summarized in the following steps.

**At the K2 Solo Media Server first birthday...**

1. Boot from the Recovery Flash Drive.
2. Create a recovery image for the K2 Solo Media Server.
3. Create a recovery image for the Control Point PC.

**At milestones, such as software upgrades...**

1. Boot from the Recovery Flash Drive.
2. Create a recovery image for the K2 Solo Media Server.

**If you need to restore the K2 Solo Media Server...**

1. Boot from the Recovery Flash Drive.
2. Read the image from the Recovery Flash Drive or from the location that you stored the image.

**If you need to restore the Control Point PC...**

1. Boot from the Recovery Flash drive.
2. Read the image from the location that you stored the image.

Use the following procedures to implement the recovery image process as necessary.

## Creating a recovery image

Before creating a recovery image, determine the storage location for the image. If you have not already stored an image on the Recovery Flash Drive, there is sufficient space available and you can store the image on the Recovery Flash Drive. Otherwise, use a network connected drive or another connected USB drive.

1. Make sure that media access is stopped and that the K2 Solo Media Server on which you are working is not being used.
2. If you have not already done so, connect keyboard, monitor, and mouse to the K2 Solo Media Server.
3. Insert the Recovery Flash Drive into a USB port and restart the machine.

The machine boots from the Recovery Flash Drive. The Acronis True Image

program loads.

4. In the Acronis True Image main window, click **Backup**.

The Create Backup Wizard opens.

5. On the Welcome page, click **Next**.

The Partitions Selection page opens.

6. Select the **(C:)** partition and then click **Next**.

**NOTE:** *Verify capacity to make sure you select the CompactFlash (CF) and not a media drive. The CompactFlash has a much smaller capacity.*

If a "...choose full backup mode..." message appears, click **OK**.

The Backup Archive Location page opens.

7. In the tree view select **Removable Drive (A:)** as the location to which you are writing the image.

8. Enter the name of the image file you are creating. Create the file name using the K2 Solo Media Server hostname and the date. Name the file with the .tib extension. For example, if the hostname is K2Client1, in the File name field you would have E:\K2Client1\_20091027.tib. Click **Next**.

The Select Backup Mode page opens.

9. Select **Create a new full backup archive**. Click **Next**.

The Backup Creation Options page opens.

10. Do not change any settings on this page. Click **Next**.

The Archive Comment page opens.

11. If desired, enter image comments, such as the date, time, and software versions contained on the image you are creating. Click **Next**.

The "...ready to proceed..." page opens.

12. Verify that you are creating an image from the C: drive and writing to the A:\ drive. Click **Proceed**.

If a "...insert next volume..." message appears, click **OK**.

The Operation Progress page opens and displays progress.

13. When a "Backup archive creation has been successfully completed" message appears, click **OK**.

14. Click **Operations | Exit** to exit the Acronis True Image program.

The K2 Solo Media Server restarts automatically.

15. Remove the Recovery Flash Drive while the K2 Solo Media Server is shutting down.

16. Upon restart, log on to Windows. When the AppCenter log on appears, you can cancel.



## Restoring from a recovery image

Before restoring from a recovery image, make sure that the K2 Solo Media Server has access to the image from which you are restoring. You can restore from an image on the Recovery Flash Drive, from a network connected drive, or from another connected USB drive.

1. Make sure that media access is stopped and that the K2 Solo Media Server on which you are working is not being used.
2. If you have not already done so, connect keyboard, monitor, and mouse to the K2 Solo Media Server.
3. Insert the Recovery Flash Drive in a USB port and restart the machine. If there is a problem restarting, hold the standby button down for five seconds to force a hard shutdown. Then press the standby button again to startup.

The machine boots from the Recovery Flash Drive. The Acronis True Image program loads.

4. In the Acronis True Image main window, click **Recovery**.

The Restore Data Wizard opens.

5. On the Welcome page, click **Next**.

The Archive Selection page opens.

6. In the tree view do one of the following:

- Expand the node for **Removable Drive (A:)**. This is the Recovery Flash Drive. Select the image file. The file for the image supplied by the Grass Valley factory is named with the serial number of the K2 Solo Media Server.
- Navigate to the location of the image file from which you are restoring. An image file has a *.tib* file name extension.

7. Click **Next**:

The Restoration Type Selection page opens.

8. Select **Restore disks or partitions** and then click **Next**.

The Partition or Disk to Restore page opens.

9. Select **FAT32 (C:)** and then click **Next**.

The Restored Partitions Resizing page opens.

10. Select **No, I do not want to resize partitions** and then click **Next**.

The Restored Partition Location page opens.

11. Select **SMART (C:)** and then click **Next**.

**NOTE:** Verify capacity to make sure you select the CompactFlash (CF) and not a media drive. The CompactFlash has a much smaller capacity.

The Restored Partition Type page opens.

12. Leave the selection at **Active** and then click **Next**.

The Restored Partition Size page opens.

13. Leave settings at their defaults. The size reported in the upper pane is the size detected of the actual C: partition. This should be the same as that reported in the Partition size field in the middle of the page. Free space before and Free space after should both be reported at 0 bytes. Click **Next**.

The Next Selection page opens.

14. Select **No, I do not** and then click **Next**.

The Restoration Options page opens.

15. Do not change any settings on this page. Click **Next**.

The "...ready to proceed..." page opens.

16. Click **Proceed**.

The Operation Progress page opens and displays progress.

17. When a "The data was successfully restored" message appears, click **OK**.

18. Click **Operations | Exit** to exit the Acronis True Image program.

The K2 Solo Media Server restarts automatically.

19. Remove the Recovery Flash Drive while the K2 Solo Media Server is shutting down.

20. After restart, check the adapter names and order. Refer to ["Reorder adapters" on page 59](#). If adapter names and order are not as documented, restore network configuration, as directed in ["Restoring network configuration" on page 50](#).

## Using CompactFlash boot media for system restore

This procedure applies to the CompactFlash card from which the K2 product normally boots. If desired, you can prepare a second CompactFlash boot media for restoring your K2 Solo Media Server, as follows:

1. For each K2 Solo Media Server, procure a blank CompactFlash boot media from Grass Valley. You must use the CompactFlash media supplied by Grass Valley. Do not use CompactFlash media procured elsewhere.
2. Label or otherwise identify the blank CompactFlash media with the name of the K2 Solo Media Server it restores.
3. If you have not already done so, use the USB Recovery Flash Drive and create a recovery image of the K2 Solo Media Server.
4. Prepare to restore the K2 Solo Media Server by booting from the USB Recovery Flash Drive. When the K2 Solo Media Server boots, do not proceed with the recovery procedure.
5. Remove the CompactFlash boot media from the K2 Solo Media Server.  
If the USB Recovery Flash Drive is in the USB port on the front bezel assembly, you can remove the front bezel assembly to access the CompactFlash boot media. Doing so does not disrupt the Acronis True Image program.
6. Insert the blank CompactFlash boot media into the K2 Solo Media Server.

7. Restore the image to the blank CompactFlash boot media.  
This is now the Recovery CompactFlash boot media for that particular K2 Solo Media Server.
8. Remove the Recovery CompactFlash boot media from the K2 Solo Media Server.
9. Insert the original CompactFlash boot media into the K2 Solo Media Server.
10. Click **Operations | Exit** to exit the Acronis True Image program.  
The K2 Solo Media Server restarts automatically.
11. Remove the USB Recovery Flash Drive while the K2 Solo Media Server is shutting down.
12. Store the Recovery CompactFlash boot media in a place where it can be retrieved quickly and easily identified with the K2 Solo Media Server it restores.
13. If a system fault occurs and you need to restore the K2 Solo Media Server, you can do so using the Recovery CompactFlash boot media as follows:
  - a. Shutdown the K2 Solo Media Server.
  - b. Exchange the current CompactFlash boot media with the K2 Solo Media Server's Recovery CompactFlash boot media.

**NOTE: On an individual K2 Solo Media Server use only the Recovery CompactFlash boot media prepared for that specific K2 Solo Media Server. Do not attempt to use the Recovery CompactFlash boot media from a different K2 Solo Media Server.**

- c. Start up the K2 Solo Media Server.

The K2 Solo Media Server boots from the Recovery CompactFlash boot media with the system intact as it existed when you created the Recovery CompactFlash boot media.

## Using diagnostic tools

Use the following sections as necessary to identify problems.

### Running Check Disk

If your K2 Summit Production Client has a critical system fault, you should run Check Disk to identify and remove any corrupted files.

1. Make sure the K2 Summit Production Client has no media access currently underway.
2. At the MS-DOS command prompt, enter the following and press **Enter**.  
`chkdsk`  
Check Disk reports file system information and lists any problem found.
3. Do one of the following:

- If Check Disk does not report any problems, close the command prompt window. Do not complete the remaining steps of this procedure.
  - If Check Disk reports a problem and prompts you to repair, continue with this procedure.
4. When prompted to repair problems, do the following:
    - a. Press the **Y** key and then press **Enter**.
    - b. Enter the following and press **Enter**.

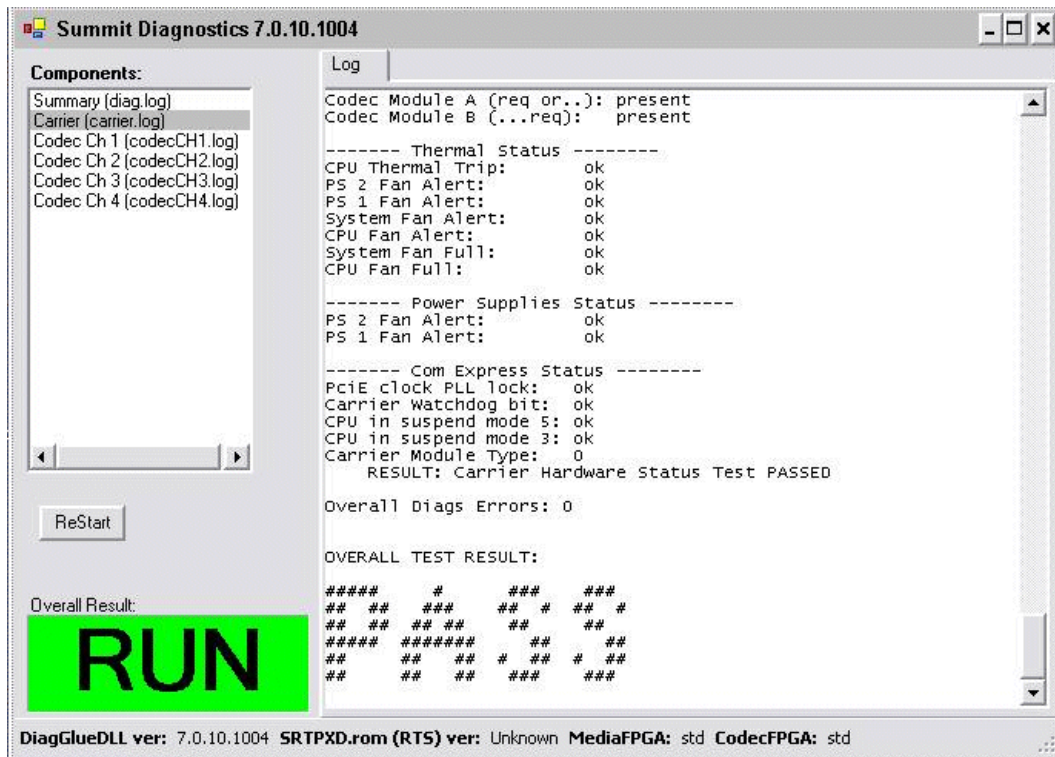
```
chkdsk /F
```

The screen displays a message similar to the following:  
The type of the file system is FAT32.  
Cannot lock current drive.  
Chkdsk cannot run because the volume is in use by another process. Would you like to schedule this volume to be checked the next time the system restarts? (Y/N)
    - c. Press the **Y** key and then press **Enter**.
  5. Restart the K2 Summit Production Client.

## Running diagnostics for K2 Summit Production Client

If you suspect a problem with K2 Summit Production Client hardware, you can run diagnostics and check for errors.

1. Make sure all media access is stopped on the K2 Summit Production Client. Also make sure that there is nothing preventing a restart, as it is required after you run diagnostics.
2. From the Windows desktop, click **Start | All Programs | Grass Valley | Diagnostics**.  
The Summit Diagnostics application opens.
3. Click **Start**.  
The Overall Result indicator displays RUN while diagnostics are underway.



When diagnostics complete, the Overall Result indicator reports results as follows:

- PASS – There are no problems reported in the diagnostic logs.
- FAIL – There are one or more problems reported in one or more diagnostic logs.

4. To view a diagnostic log, in the Components list, select a log.

The log's contents appear in the Log pane.

5. To close the Summit Diagnostics application, allow any currently running diagnostics to complete, then click the window close button (X) in the upper right corner of the application window.

A "...should be restarted..." message appears.

6. Click **OK** and then restart the K2 Summit Production Client.

You must restart before you can use the K2 Summit Production Client. Running diagnostics puts the real time processor and other services in a non-production state.



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## **Troubleshooting problems**

If you think there is something wrong (broken) with your K2 system, go through the following preliminary steps:

- [“Step 1: Check configurations” on page 72](#)
- [“Step 2: Check connections and external equipment” on page 72](#)
- [“Step 3: Check system status messages” on page 72](#)
- [“Step 4: Identify problems using the startup sequence” on page 72](#)

Then use the following topics to troubleshoot specific problem areas:

- [“Shutdown/restart problems” on page 74](#)
- [“Checking external equipment” on page 75](#)
- [“Power connection sequence” on page 75](#)
- [“BIOS startup” on page 76](#)
- [“Windows startup” on page 76](#)
- [“K2 Solo Media Server system startup” on page 76](#)
- [“Windows startup problems” on page 77](#)
- [“Codec board problems” on page 77](#)
- [“Power supply problems” on page 78](#)
- [“Video problems” on page 79](#)
- [“Audio problems” on page 79](#)
- [“Timecode problems” on page 80](#)
- [“Operational problems” on page 81](#)
- [“System problems” on page 82](#)
- [“Storage problems” on page 83](#)
- [“Network, transfer, and streaming problems” on page 86](#)

## Step 1: Check configurations

Many times what appears to be a K2 Solo Media Server fault is actually an easy-to-fix configuration problem. Check settings in Configuration Manager and verify that the system is configured as you expect. Refer to the *K2 AppCenter User Manual* and the *K2 System Guide*.

## Step 2: Check connections and external equipment

Loose or improperly connected cables are the most likely source of problems for the system. A quick check of all the cable connections can easily solve these problems. Refer to the *K2 System Guide* for help with making connections. Refer to the troubleshooting topic [“Checking external equipment” on page 75](#) if you suspect a failure in a device connected to the K2 Solo Media Server.

## Step 3: Check system status messages

While the K2 Solo Media Server is in operation, some problems are detected and reported in system status messages. To view system status messages, in AppCenter select **Help | System Status**. Also refer to [“Viewing AppCenter system status messages” on page 41](#).

When connecting to a K2 Solo Media Server from a control point PC using remote AppCenter, if there is an AppCenter system startup error, the error is reported during the connection attempt.

If the system status message indicates a problem, refer to the related troubleshooting topic later in this chapter.

**NOTE:** *Do not use the MegaRAID utility on a K2 Solo Media Server. This utility is for use by qualified Grass Valley Service personnel only. When this utility is opened it scans the SCSI bus and interferes with record and play operations.*

## Step 4: Identify problems using the startup sequence

The startup sequence is your primary tool for identifying a K2 Solo Media Server fault. As the different levels of the K2 Solo Media Server system become operational in the startup process, the primary components of the system are checked. You can identify most problems by evaluating the messages and other indicators that occur during the startup sequence.

**NOTE:** *This procedure assumes that the K2 Solo Media Server is not in Storage Utility’s “offline” mode.*

To identify problems using the startup sequence, do the following:

1. Connect mouse, keyboard, and monitor. You must observe the VGA screen and be able to interact with the system via keyboard and mouse to fully identify problems.
2. Restart the K2 Solo Media Server. If you have problems, refer to [“Shutdown/restart problems” on page 74](#).



3. Once the startup sequence begins, observe the progression of behaviors as listed in the following table. These are the behaviors you should expect to see and/or hear for a normally operating K2 Solo Media Server. If you observe behaviors other than those listed, refer to the indicated troubleshooting topics to identify problems.

**NOTE:** You can press the Pause/Break key on the keyboard to keep startup text on the screen for longer viewing.

At about this time...	This behavior should occur...	If not, refer to the following:
—	Pressing the standby button starts the K2 Solo Media Server	<a href="#">“Shutdown/restart problems” on page 74</a>
0 seconds	Power on LED goes on and stays on.	<a href="#">“Power supply problems” on page 78</a>
	Service LED stays off.	<a href="#">“Shutdown/restart problems” on page 74</a>
	Front bezel assembly and processor fan start	<a href="#">“Windows startup problems” on page 77</a>
10 seconds	System BIOS screen appears briefly	<a href="#">“BIOS startup” on page 76</a>
12 seconds	LSI MegaRAID BIOS screen appears.	
35 seconds	Disk information is added to the LSI MegaRAID BIOS screen	<a href="#">“BIOS startup” on page 76</a>
40 seconds	Screen with blank disk information appears	
45 seconds	Grass Valley logo screen appears	—
60 seconds	Service LED goes on.	<a href="#">“K2 Solo Media Server system startup” on page 76</a>
65 seconds	Solid color (desktop background) screen appears	<a href="#">“Windows startup” on page 76</a>
70 seconds	Windows logon screen appears	
Logon to Windows to continue the startup sequence.		
After Windows logon:		
0 seconds	Grass Valley logo desktop appears	<a href="#">“K2 Solo Media Server system startup” on page 76</a>
9 seconds	Desktop icons and startbar appear	<a href="#">“Windows startup” on page 76</a>
12 seconds	AppCenter logon box appears.	<a href="#">“K2 Solo Media Server system startup” on page 76</a>
Logon to AppCenter to continue the startup sequence.		
After AppCenter logon:		
0 seconds	System Startup messages appear	<a href="#">“K2 Solo Media Server system startup” on page 76</a>
Time varies. Between 30 seconds and 2 minutes.	All system components check out as OK and AppCenter workstation opens. Media operations are functional.	<a href="#">“Operational problems” on page 81</a>

## Shutdown/restart problems

If the K2 Solo Media Server is inoperable due to an error it can affect the operation of the standby button. If pressing the standby button does not shut down the K2 Solo Media Server, press and hold the button for five seconds. This forces the K2 Solo Media Server to execute a hard power down. If that doesn't work or if after the hard power down the system does not boot, disconnect then reconnect the power cable(s).

The K2 Solo Media Server is set to attempt to boot from a USB drive first, before it boots from the CompactFlash boot media. If you have a drive connected to a USB port that does not contain an appropriate operating system and you start up the K2 Solo Media Server, an error message is displayed and the boot up process halts.

## Checking external equipment

This section provides troubleshooting procedures for external devices that connect to the K2 Solo Media Server. Before using these procedures, first check connections, as in [“Step 2: Check connections and external equipment” on page 72](#).

### VGA display problems

Problem	Possible Causes	Corrective Actions
Screen turns on, but nothing from K2 Solo Media Server is displayed	VGA connector or cable is not connected or is faulty.	Replace VGA monitor.
	K2 Solo Media Server system settings have been tampered with.	Restore default settings by restoring the system drive image from a recent backup image.

### Keyboard and mouse problems

The keyboard and mouse are detected during BIOS startup. There should be a very brief message displayed indicating detection of input devices connected to USB ports

Problem	Possible Causes	Corrective Actions
The K2 Solo Media Server does not respond correctly when one or more of the keys on the keyboard are pressed or the mouse is used.	The keyboard or mouse is faulty.	Replace the keyboard or mouse.
	K2 Solo Media Server system settings have been tampered with.	Restore default settings by restoring the system drive image from a recent backup image.

## Power connection sequence

The following table lists the sequence of behaviors you should expect to see and/or hear as you connect the first power cable to a normally operating K2 Solo Media Server. If you observe behaviors other than those listed, refer to other sections of this manual to investigate potential problems.

In this time...	On the K2 Solo Media Server front panel or chassis, look/listen for the following...	If not, refer to the following.
0 seconds	Power supply fans go on and stay on.	<a href="#">“Power supply problems” on page 78</a>
	Power on LED goes on and stays on.	
	Drive busy LED goes on then off.	<a href="#">“Media disk problems” on page 83</a>

This power connection sequence assumes that before power was removed, the K2 Solo Media Server was properly shut down from AppCenter, from the Windows operating system, or from the standby button. If the power was removed without a proper shutdown, when the first power cord is connected the K2 Solo Media Server might go directly to the startup sequence. Refer to [“Shutdown/restart problems” on page 74](#).

## BIOS startup

A few seconds after startup, on the VGA monitor a black screen is displayed with system information messages. This is the BIOS Power On Self Test (POST). Press **Delete** on the keyboard during this time to enter the BIOS settings pages. When the BIOS POST completes the Windows operating system begins to load.

If during the BIOS POST time a message appears that requires your input or if the K2 Solo Media Server does not progress to Windows startup, it indicates a problem at the motherboard level. To correct problems of this nature, contact Grass Valley Support.

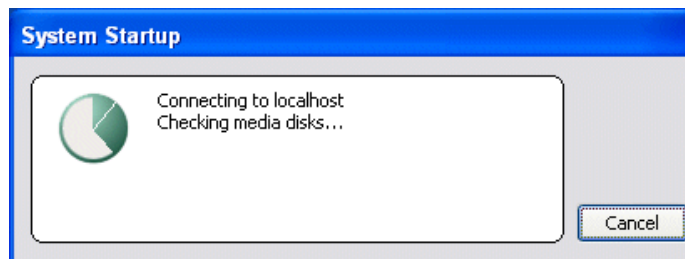
## Windows startup

After the host startup processes complete the Windows operating system starts up. Normally the Windows operating system completes its processes automatically without the need to press keys or respond to messages. When the Windows startup is complete the Windows logon dialog box is displayed.

If the Windows startup screen does not proceed automatically or if a message appears that requires your input, it indicates a problem at the operating system level. Refer to [“Windows startup problems” on page 77](#). If the problem cannot be corrected with a supported procedure (such as networking), the Windows operating system is not operating as it should. To correct problems of this nature, restore the system drive image. Refer to [“Using recovery images” on page 62](#).

## K2 Solo Media Server system startup

After the Windows operating system startup processes complete, you must log in to AppCenter to trigger K2 Solo Media Server system startup processes to begin. The K2 Solo Media Server determines that system health is adequate by checking critical subsystems. Critical subsystems are those upon which the K2 Solo Media Server depends for core media functionality. Critical subsystem checks are displayed in the System Startup message box.



When all critical subsystem checks are successful, AppCenter workstation opens. If a critical error occurs, a message appears and AppCenter does not open. Refer to [“Critical system startup messages” on page 41](#) for a list of the messages that can appear.

To correct problems revealed at system startup, use the indicated troubleshooting information from the following sections.

## Windows startup problems

Problem	Possible Causes	Corrective Actions
A “Non-system disk. Press any key to restart” message appears.	A non-bootable USB drive is connected.	Remove the USB drive, then press any key to continue.
	The CompactFlash boot media is corrupted.	Restore from the USB Recovery Flash Drive.

## Thermal problems

Problem	Possible Causes	Corrective Actions
The K2 Solo Media Server overheats. This can be accompanied by a StatusPane message indicating a temperature or fan problem.	Airflow is blocked.	Ensure adequate airflow around the K2 Solo Media Server.
	The fan module is not operating correctly.	Inspect the fans in the front bezel assembly and its connections for proper operation. If the fans are not operating correctly, replace the front bezel assembly as explained in <a href="#">“Front bezel removal” on page 91</a> .

## Codec board problems

Investigate the problem further as described in the following table. If the problem persists, contact Grass Valley Support.

Problem	Possible Causes	Corrective Actions
A system status message indicates a problem with the codec board.	The codec module is not connected properly or is faulty.	Check the codec board indicator (LED) on the rear panel. Visually inspect codec module. Make sure it is connected properly and there is no sign of physical damage. Restart the K2 Solo Media Server. If the problem persists, replace the codec module. Refer to <a href="#">“Unfasten and disconnect cables” on page 97</a> .

## Power supply problems

<b>Problem</b>	<b>Possible Causes</b>	<b>Corrective Actions</b>
The K2 Solo Media Server will not power on or power fails while the K2 Solo Media Server is in operation. This can be accompanied by a StatusPane message indicating a power supply problem prior to the failure.	The power source is faulty.	Make sure your power source is reliable.
	A power cord is faulty.	Test with a replacement cord.
	The K2 Solo Media Server is too hot. The built-in overtemperature protection can shut down the power supply.	Check for thermal problems. Cool the K2 Solo Media Server.
	The power supply is faulty. This is indicated if the front panel power indicator does not come on.	Replace the power supply

To replace the power supply, refer to [“Power supply removal” on page 99](#).

## Video problems

For the corrective actions in this section, refer to the *K2 AppCenter User Manual* for detailed instructions.

Problem	Possible Causes	Corrective Actions
The picture level modulates at a particular frequency.	There is distortion in the video input signal.	Check the video input signal for distortion. Compare with test color bars and audio test tone.
In stop mode the still-play video shows some motion jitter.	Two fields are displayed in still play mode.	Switch the still-play mode setting to Field.
The video displays erratically moving green lines.	K2 Solo Media Server is not locked to a video reference.	Lock the K2 Solo Media Server to a video reference.

## Audio problems

For the corrective actions in this section, refer to the *K2 AppCenter User Manual* for detailed instructions.

Problem	Possible Causes	Corrective Actions
No record audio	Wrong audio input selected	Select the correct audio input.
No embedded audio	Video source does not have embedded audio.	Check your video source for embedded audio.
Playback audio output is distorted.	Audio input signal clipping caused by excessive audio input level.	Check for input audio clipping. Adjust the audio input trim. Adjust the Player audio level. Reduce the source audio input level.
Audio level is too low.	Audio level needs to be adjusted.	Adjust the Player or Recorder audio level. Increase the source audio input level.
The audio level is not correct only when playing a particular clip.	The clip's audio level is out of adjustment.	Load the clip in Player and adjust its playback audio level.
Audio level meters do not display the correct reference level on connected equipment.	Incorrect audio reference level	Select the correct audio reference level.
Audio meters do not appear in the AppCenter Monitor Pane.	The Monitor Pane configured to not display audio meters.	Configure the Channel Monitoring setting to display audio meters.

## Timecode problems

For the corrective actions in this section, refer to the *K2 AppCenter User Manual* for detailed instructions

<b>Problem</b>	<b>Possible Causes</b>	<b>Corrective Actions</b>
Recorded timecode reads xx.xx.xx.xx.	During recording, the channel had no timecode source.	Check that you have the right record channel timecode source selected, verify that timecode is present in the source, and record the clip again. You can also stripe the timecode on an existing clip.
A clip shows no mark-in/mark-out timecode, the current timecode display shows XX:XX:XX:XX, or the last valid timecode is displayed.	The selected timecode source was missing or intermittent during recording.	



## Operational problems

For the corrective actions in this section, refer to the *K2 AppCenter User Manual* for detailed instructions.

Problem	Possible Causes	Corrective Actions
Moving video in AppCenter does not operate.	The K2 Solo Media Server is not licensed for AppCenter Pro.	Obtain an AppCenter Pro license.
	The VGA monitor resolution is less than 1024x768x32.	Configure VGA monitor resolution. The resolution must be at least 1024x768x32 to support live video.
	Another user is connected via Remote Desktop.	Restart AppCenter.
After restarting, a file modification, configuration setting, or other change is lost.	The write filter is enabled.	Disable the write filter, make the change that you want to make permanent, then enable the write filter.
The K2 Solo Media Server is not operating as expected in relation to a setting displayed in Configuration Manager.	The setting was changed in Configuration Manager but not saved to the database.	Verify the setting you want in Configuration Manager and then select OK. When prompted to change the system settings, select Yes.
AppCenter displays different buttons than those expected.	Assignable buttons have been changed.	Assign buttons to the interface as desired.
A clip does not play, even though other clips play on the same channel.	The clip does not match current K2 Solo Media Server settings or the clip is corrupt.	If the clip appears grayed-out it means it doesn't match current settings. Check the clip's properties and verify they are correct for the video standard, compression, and other current settings. Compare properties with those of a clip that plays correctly. If properties are correct the clip is corrupt. Delete and re-record the clip.
	The K2 system is not licensed for the format of the clip	Verify licensing
A clip can not be edited.	The clip is locked.	Unlock the clip.
Can't rename a clip or modify mark-in/mark-out points	The clip loaded or playing is still being recorded. In this case, "Read-Only" is displayed in the StatusBar.	Wait until recording is complete.
Cannot load and play a list.	The list contains invalid clips.	Check format, licensing, and security setting of the clips in the list.

<b>Problem</b>	<b>Possible Causes</b>	<b>Corrective Actions</b>
On setting mark-out, the subclip is automatically generated and ejected, and a new subclip name is loaded in the subclip pane.	Auto Subclip mode is enabled.	Disable Auto Subclip mode.
Can't change what information is displayed in the Monitor Pane for Playlist.	You are attempting to use Configuration Manager to change what information is displayed in Monitor Pane for Playlist.	Use the Playlist Options dialog instead.
Can't control a channel from AppCenter. Controls are disabled.	The channel is configured for control by a remote control protocol.	Set the control mode for limited local control.

## System problems

For the corrective actions in this section, refer to the *K2 AppCenter User Manual* for detailed instructions.

<b>Problem</b>	<b>Possible Causes</b>	<b>Corrective Actions</b>
One of the record channels does not record or video is jumpy.	The K2 Solo Media Server is configured for PAL, yet the video input is NTSC	Check the current setting for video standard. Verify that the video input signal is the correct standard.
A scheduled event, such as an automatic play or record event, does not occur at the proper time.	The time-of-day source for event scheduling is not accurate.	Verify the time-of-day source. Verify the source's time accuracy.

## Storage problems

Use the following sections if you suspect problems with your K2 Solo Media Server's storage system. Refer to the *K2 System Guide* for Storage Utility procedures.

### Media File System problems

Problem	Possible Causes	Corrective Actions
One or more clips do not play or record correctly. This can be accompanied by a StatusPane message indicating a fault in the media file system.	The media database is out of sync with the media files or there is a corrupt media file. Also see <a href="#">“Checking the storage system” on page 85</a> for causes related to certain usage patterns.	<ol style="list-style-type: none"> <li>1. If the problem is only associated with a specific clip or clips, delete the problem clips. If the problem persists, proceed with the next step.</li> <li>2. Use Storage Utility and Check File System. If the file system fails the check process you must make a new file system. When you do so you lose all media.</li> </ol>
During K2 Solo Media Server startup a “...no file system running...” message appears.	The file system is corrupt or disks are faulty/missing such that they are not part of a stripe group.	Use Storage Utility and Check File System. If the file system fails the check process you must make a new file system. When you do so you lose all media.

### Media disk problems

On the Windows desktop open **K2 Media Client** (My Computer) for a quick check of the drives. You should see C: and V: drives.

Problem	Possible Causes	Corrective Actions
No clips appear in the Clips pane. This may be accompanied by a startup message or a StatusPane message regarding media disks being unavailable.	A media disk is bad or there has been a hardware failure.	Open Storage Utility and identify faulty disks. Replace faulty disks. Refer to <a href="#">“Replacing a RAID 0 drive” on page 49</a> .
On startup the VGA startup sequence stalls at the black screen with a “...operating system not found...” message.	<p>There is a connected USB drive that does not contain an operating system.</p> <p>There is a problem with the system drive.</p>	<p>Disconnect the USB drive and restart</p> <p>Check the CompactFlash boot media. If necessary, restore or replace.</p>

Problem	Possible Causes	Corrective Actions
The StatusPane message “Media disks getting full...” appears or a “FSS ‘default(0)’” message appears.	The media disks are reaching maximum capacity.	In Recorder, select the Time Dome and choose <b>Available Storage</b> . If the Time Dome is filled it confirms that your K2 Solo Media Server is out of space. Make space on the media drives by doing the following: - Delete unused clips and empty the Recycled Bin.
When streaming to another K2 Solo Media Server the operation fails. In Transfer Monitor the streaming operation shows “Status:Error”.	There is a network connection error or the media disks at the destination are reaching maximum capacity.	Check network connections and configuration. Check available storage on the destination K2 Solo Media Server. In Recorder, select the Time Dome and choose <b>Available Storage</b> . If the Time Dome is filled it confirms that the destination K2 Solo Media Server is out of space. Make space on the media drives by deleting unused clips and emptying the Recycle Bin.
System status message “File system...is fragmented”.	Extended record/play activity has fragmented the disks.	Use the Storage Utility to check the file system.

## Checking the storage system

The following section provides guideline for investigating problem areas related to the storage system. Use this section if you have problems with media input and/or output that are intermittent or seem to be related to certain usage patterns.

Problem	Possible Causes	Corrective Actions
<p>Symptoms can include black video recorded or at playout, frozen video, slow performance, or inconsistent media access. These symptoms can be accompanied by StatusPane messages regarding disk problems or overrun/underrun conditions for encoders, decoders, or timecode.</p>	<p>The following causes can occur on their own or in combination to produce the problem:</p> <p>Disk oversubscription — This occurs when requests to the media disk exceed the disk's bandwidth capabilities. This generally occur in extreme cases when a combination of high-bandwidth operations are taking place, such as jog/shuttle, record/play on multiple channels, or streaming multiple clips.</p> <p>High CPU activity in Windows — This occurs when activities on the Windows operating system over-tax the capabilities of the CPU. This commonly happens when unsupported software has been installed that competes with K2 Solo Media Server applications. Virus scanners and screen savers can cause this type of problem, since they can start automatically and consume system resources.</p> <p>Encoder overrun — This occurs when an encoder is flooded with more data than it can process within its real-time requirements for recording.</p> <p>Decoder underrun — This occurs when a decoder is starved for data and cannot deliver enough to satisfy real-time requirements for playout.</p> <p>Disk faults — This occurs when a media disk is severely fragmented or has a bad blocks that interfere with some, but not all, media operations. For example, a particular clip can be written on a bad block, so the problem occurs only on that clip.</p>	<p>Try to re-create the problem. Identify all the interactions that affected the system and run all the same operations as when the error occurred. Record/play/stream the same clips. Investigate the functions that seem to push the system into the error state. If you determine that certain simultaneous operations cause the problem, re-order your workflow to avoid those situations. If you determine that the problem is only on certain clips, investigate disk faults.</p>

## Network, transfer, and streaming problems

Remember to disable the write filter before making changes and enable the write filter after making changes.

Problem	Possible Causes	Corrective Actions
When importing or exporting (sending) between K2 Solo Media Servers a "...failed to connect..." message appears and the operation fails.	There is a problem with Windows networking or there is a mis-spelling with the host name as entered in Configuration Manager.	Check networking as follows: - Check basic Windows networking. Use Windows Explorer to test a basic copy operation to the machine to which you are trying to connect. If basic networking fails, use standard Windows procedures to troubleshoot and correct your network. - If the Windows network is working properly, in AppCenter select <b>System   Configuration   Remote</b> and verify that the name of the machine to which you are trying to connect is spelled correctly and has no extra spaces or characters.
	The K2 Solo Media Server to which you are trying to connect is not operating or the network is mis-configured.	Verify that the K2 Solo Media Server to which you are trying to connect is operational and that the network is configured correctly. Verify that the name of the K2 Solo Media Server is entered correctly in the Configuration Manager Hosts page. Refer to networking procedures in the <i>K2 System Guide</i> .
A networked device does not appear in the "Import" and "Send to" dialog boxes, even though it is present on the Windows network.	The device is not entered as a host.	In AppCenter select <b>System   Configuration   Remote   Add</b> and enter the name of the machine to which you are trying to connect. Make sure it is spelled correctly and has no extra spaces or characters. Also check the hosts file. Refer to networking procedures in the <i>K2 System Guide</i> .
Files do not appear in "Send To" or "Export" dialogs.	File names do not have proper extensions.	Rename files with proper extensions.

Also refer to the *UIM Instruction Manual* for more troubleshooting information.

---

## Removing and replacing FRUs

Field Replaceable Units (FRUs) are modular hardware components that can be serviced without disturbing other components in the system. The following topics discuss working with the K2 Solo Media Server FRUs:

- [“External Parts Removal”](#)
- [“Internal Parts Removal”](#)

The pictures in these topics show how to disassemble. Unless otherwise documented, re-assembly is the reverse.

To complete all FRU procedures, the following tools are required:

- Torx tool with T15 magnetic tip. This is the only tool needed for most FRU procedures. If additional tools are required, they are listed with the FRU procedure.
- #1 Phillips screwdriver
- #2 Phillips screwdriver
- 3/16” nut driver
- 1/4” nut driver
- Side cutters

***NOTE: Only Grass Valley components are supported. Do not attempt to use components procured from a different source.***

***NOTE: Do not discard any hardware unless specifically instructed to do so.***



***WARNING: To avoid serious injury from high currents, ensure that power cords are disconnected prior to removing or replacing any parts.***



***CAUTION: This system contains board-level components that must be protected from static discharge and physical shock. Wear a wrist strap grounded to the system chassis when handling system components.***

## External Parts Removal

This section provides the following procedures:

- “Handipak handle removal” on page 88
- “Handipak handle removal” on page 88
- “Handipak feet removal” on page 89
- “Handipak handle removal” on page 88
- “Codec option card removal” on page 90
- “Front bezel removal” on page 91
- “CompactFlash boot media removal” on page 91
- “Fan assembly removal” on page 92
- “Fan removal” on page 93
- “Disk controller board removal” on page 93
- “Front interconnect board removal” on page 93
- “Disk module removal” on page 94

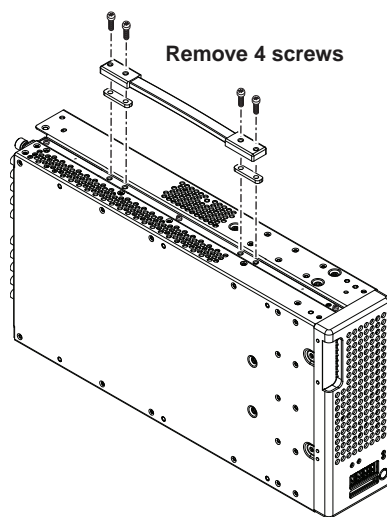
All the parts in this category can be removed and replaced without opening the K2 Solo Media Server cabinet.



**CAUTION:** To avoid possible damage to circuit boards and other sensitive parts, turn off the K2 Solo Media Server and disconnect the power cord before disassembling.

### Handipak handle removal

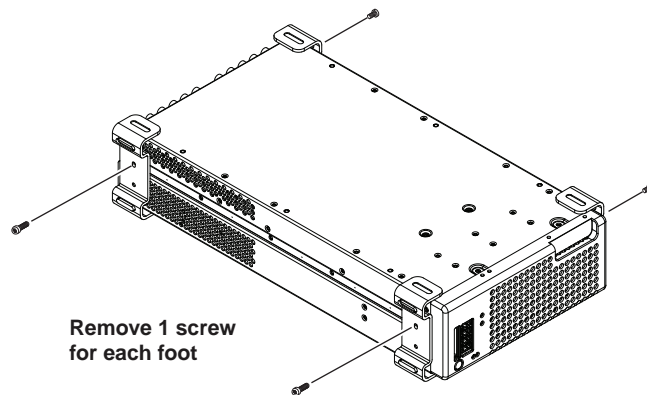
Remove the optional Handipak handle as illustrated.





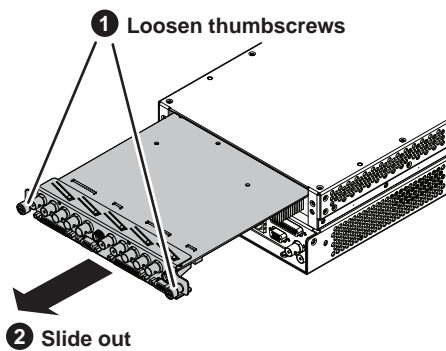
## Handipak feet removal

Remove one or more of the optional Handipak feet as illustrated.



## Codec module removal

Access the codec module from the rear panel. Remove as illustrated.



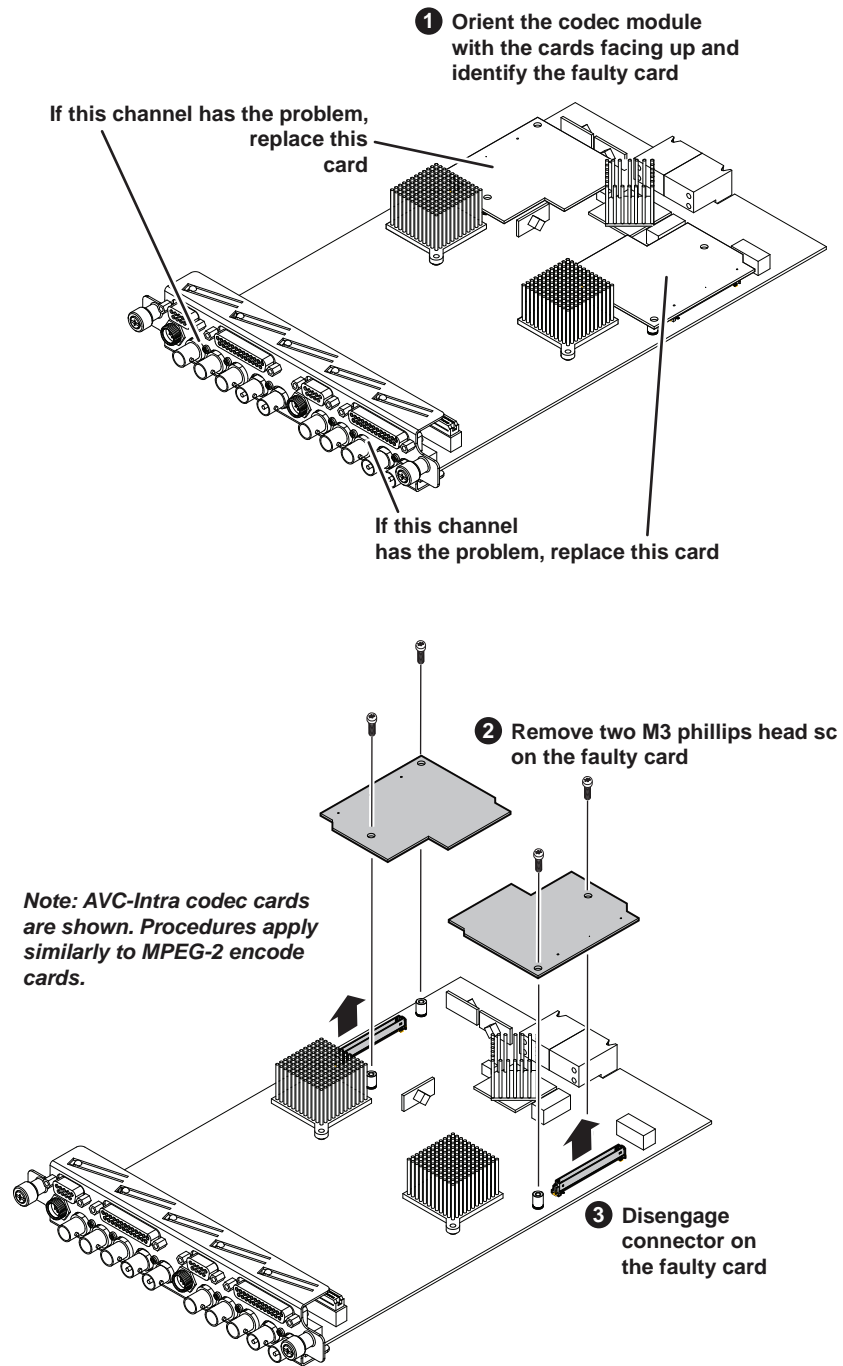
**NOTE:** Use caution when removing/installing to prevent damage to codec module surface-mount components. Before installing, inspect the codec module chamber and make sure no cables are protruding into the path of the codec module.

## Codec option card removal

Additional tools needed:

- #2 Phillips screwdriver

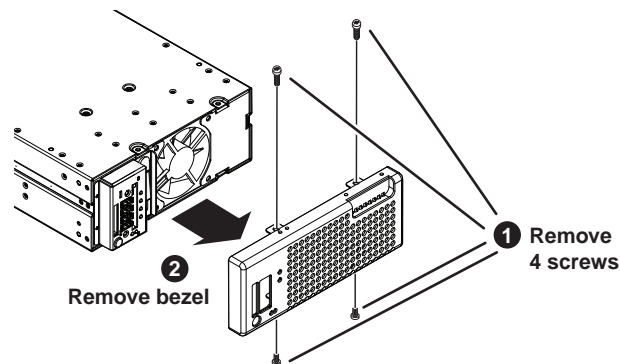
To remove either the MPEG-2 encoder card or the AVC-Intra codec card from the codec module, first remove the codec module, then proceed as illustrated.



After installing the replacement card, install the current version of K2 software. An over-install is all that is required. You do not need to first un-install the software. This ensures that the card is flashed with the proper version to be compatible with K2 software.

**NOTE:** Once a channel is operational with MPEG-2 or AVC-Intra, if you then remove the cards from the codec module you must also delete `C:/profile/config/config.xml`. Failure to do so causes errors in Configuration Manager.

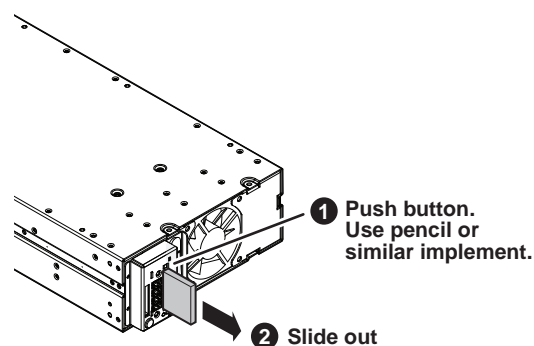
## Front bezel removal



**CAUTION:** Do not remove bezel while power is on. If powered, the fan can turn on with moving blades exposed.

## CompactFlash boot media removal

To remove the boot media, first remove the front bezel, then proceed as illustrated.



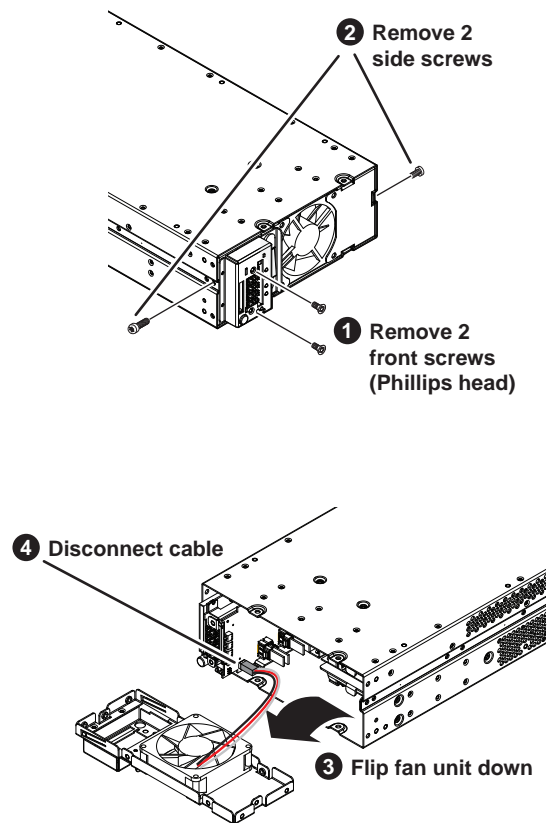
You must use the CompactFlash boot media provided by Grass Valley. Do not use CompactFlash media procured elsewhere.

## Fan assembly removal

Additional tools needed:

- #2 Phillips screwdriver

To remove the fan assembly, first remove the front bezel, then proceed as illustrated.



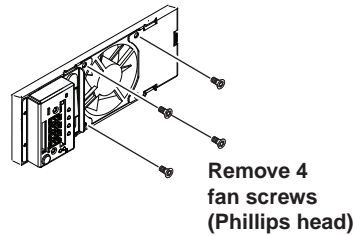
**CAUTION:** Do not remove fan assembly while power is on. The standby button is frequently bumped during this procedure and if powered, circuits and fans are activated, which can cause damage.

## Fan removal

Additional tools needed:

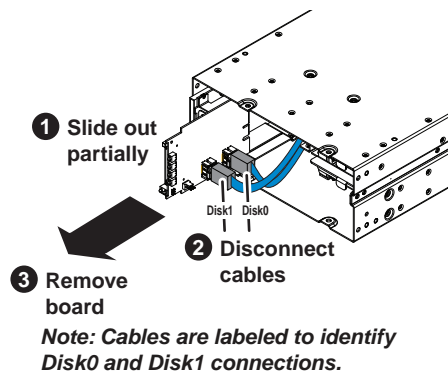
- #2 Phillips screwdriver

To remove the fan, first remove the front bezel and fan assembly, then work on the fan assembly as illustrated.



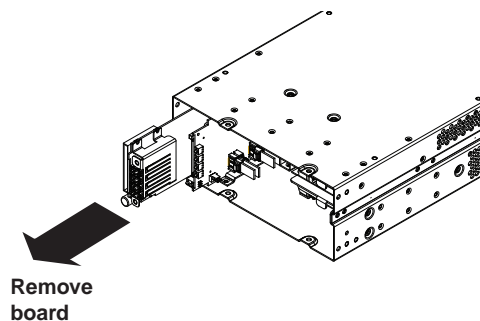
## Disk controller board removal

To remove the disk controller board first remove the front bezel and fan assembly, then proceed as illustrated.



## Front interconnect board removal

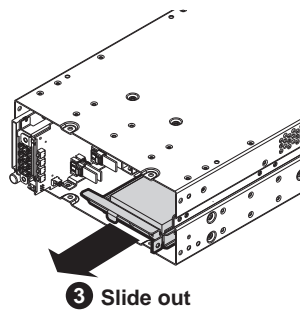
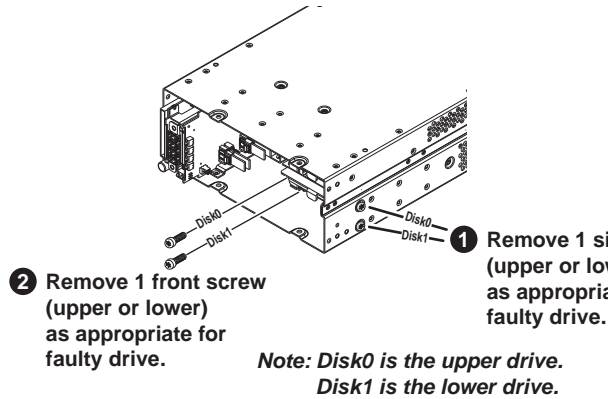
To remove the front interconnect board first remove the front bezel and fan assembly, then proceed as illustrated.



## Disk module removal

Before removing a disk module, refer to [“Replacing a RAID 0 drive” on page 49](#). Before removing, you should make sure you have identified the proper disk module. You can use Storage Utility to identify. In some cases you must also perform operations with Storage Utility.

To remove a disk module first remove the front bezel and fan assembly, then proceed as illustrated.



## Internal Parts Removal

The sections that follow show how to remove internal parts from the K2 Solo Media Server.

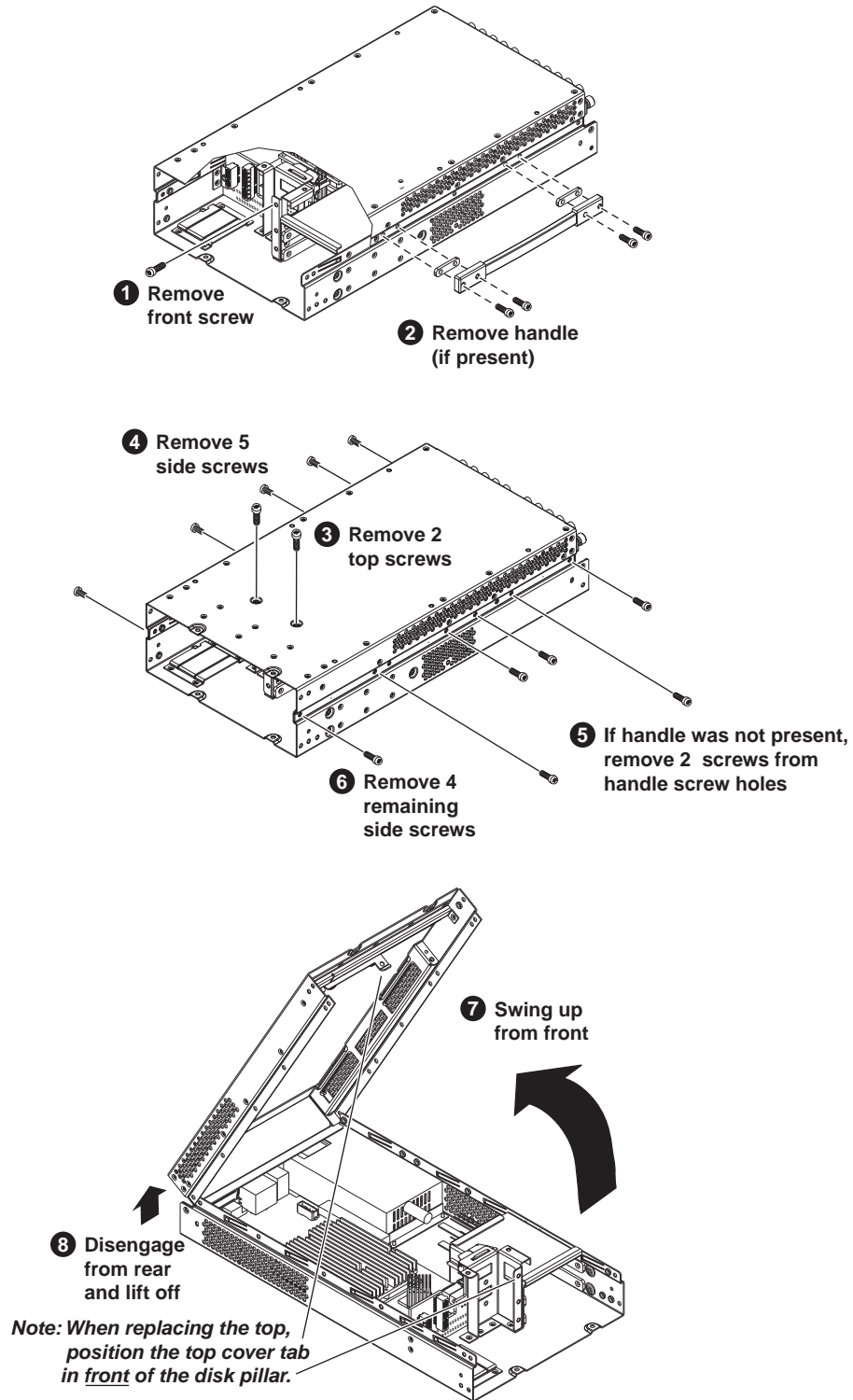
- “Top cover removal” on page 96
- “Unfasten and disconnect cables” on page 97
- “Remove rear panel” on page 97
- “Carrier module removal” on page 99
- “Power supply removal” on page 99
- “Midplane board removal” on page 101
- “Drive cable assembly removal” on page 101
- “Installing components and dressing cables” on page 102



***CAUTION: To avoid possible damage to circuit boards and other sensitive parts, turn off the K2 Solo Media Server and disconnect the power cord before disassembling.***

## Top cover removal

Before removing the top cover, first remove the front bezel, fan assembly, disk controller board, and front interconnect board. Then remove the top cover as shown:



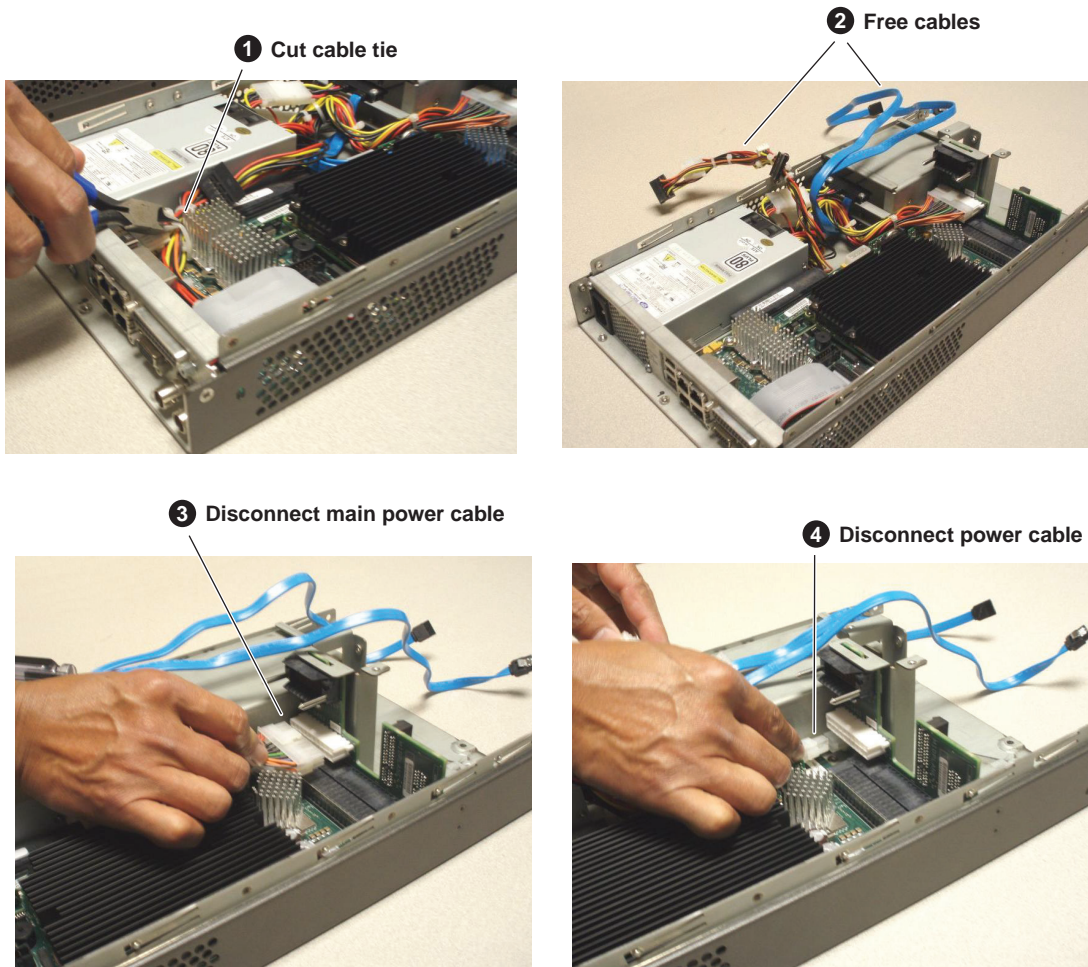


## Unfasten and disconnect cables

Additional tools needed:

- Side cutters

To remove any of the internal FRUs you must first remove the top cover. Then you must cut cable ties, free cables, and disconnect cables as shown.



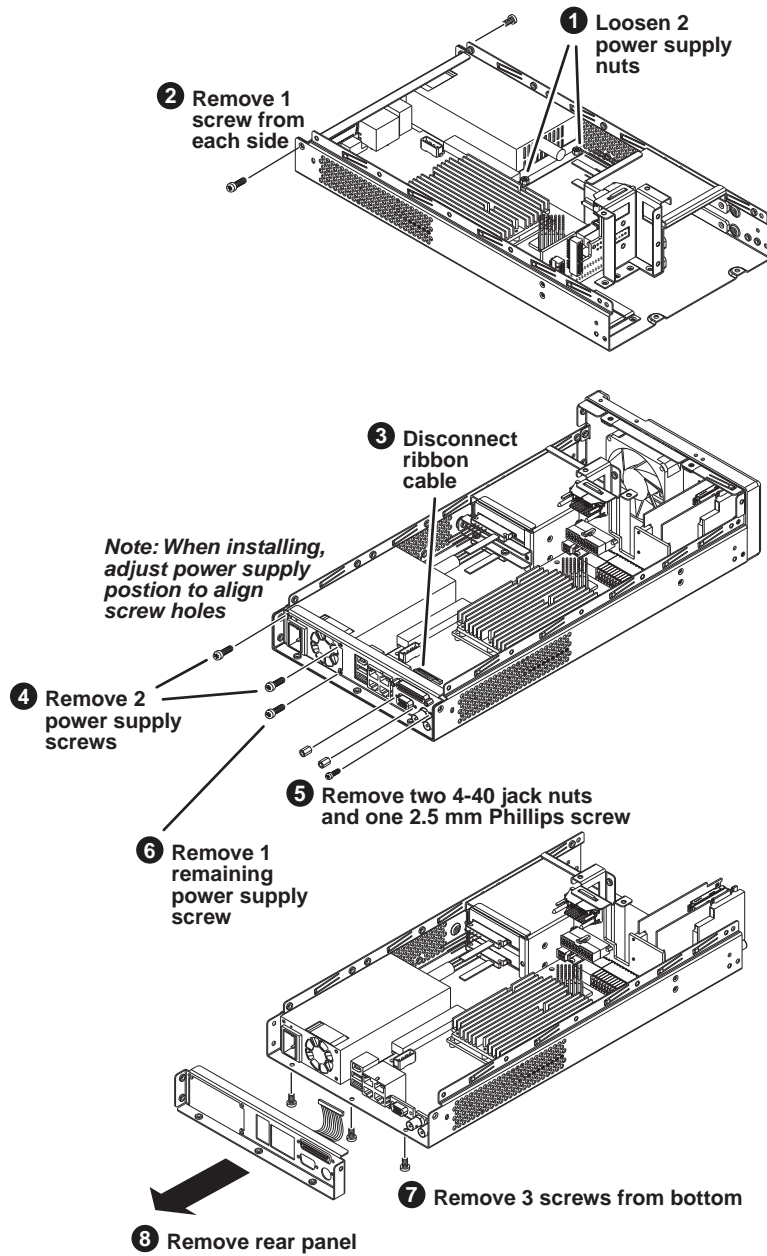
When installing, follow [“Installing components and dressing cables”](#) on page 102.

## Remove rear panel

Additional tools needed:

- #1 Phillips screwdriver
- #2 Phillips screwdriver
- 3/16” nutdriver
- 1/4” nutdriver

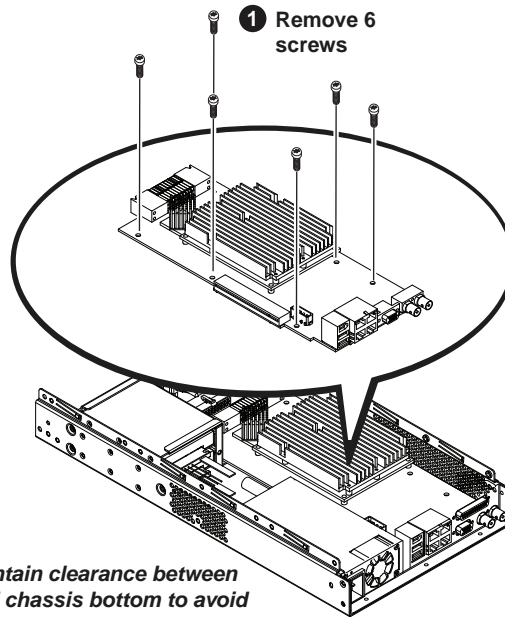
To remove any of the internal FRUs you must first remove the top cover and unfasten/disconnect cables, then remove the rear panel as illustrated.



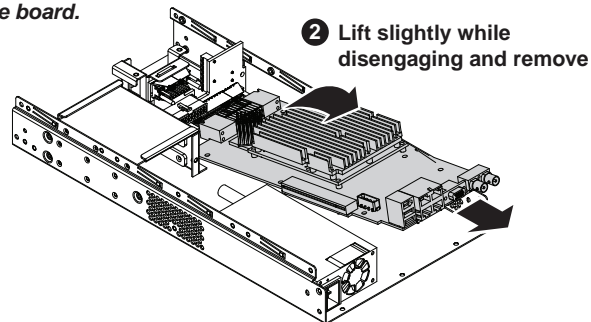
When installing, follow [“Installing components and dressing cables”](#) on page 102.

## Carrier module removal

To remove the carrier module first remove the top cover, unfasten/disconnect cables, remove the rear panel, then proceed as illustrated.



*Note: Maintain clearance between board and chassis bottom to avoid damaging board components. Do not slide board.*



When replacing the carrier board, position the board so that it lines up with the screw holes beneath.

When installing, follow [“Installing components and dressing cables”](#) on page 102.

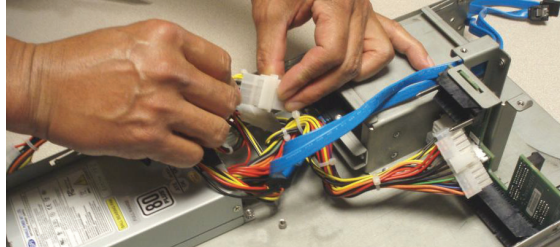
## Power supply removal

Additional tools needed:

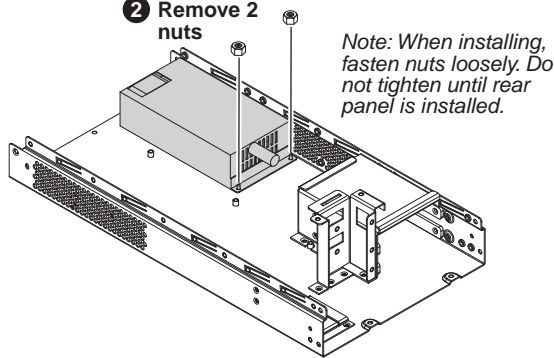
- 1/4” nutdriver

To remove the power supply first remove the top cover, unfasten/disconnect cables, remove the rear panel, remove the carrier board, then proceed as illustrated.

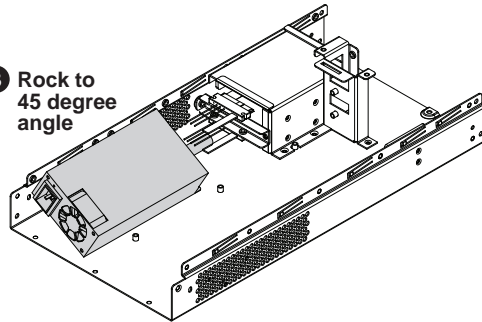
**1 Disconnect 2 power supply cable connectors**



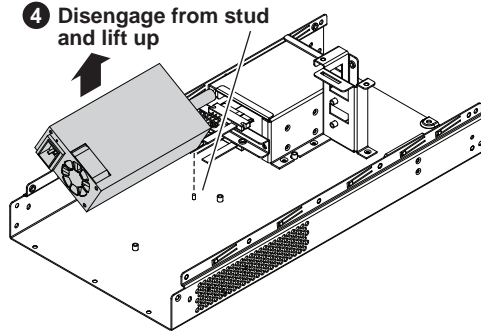
**2 Remove 2 nuts**



**3 Rock to 45 degree angle**



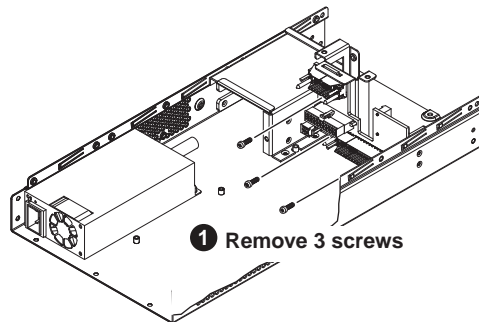
**4 Disengage from stud and lift up**



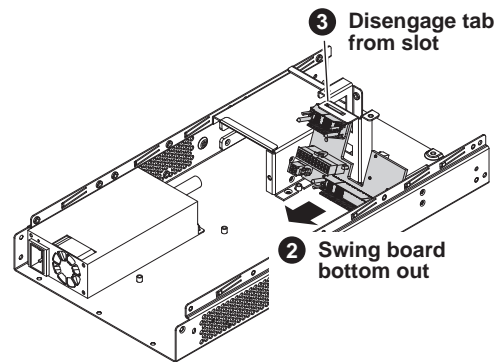
When installing, follow [“Installing components and dressing cables”](#) on page 102.

## Midplane board removal

To remove the midplane board first remove the top cover, unfasten/disconnect cables, remove the rear panel, remove the carrier board, then proceed as illustrated.



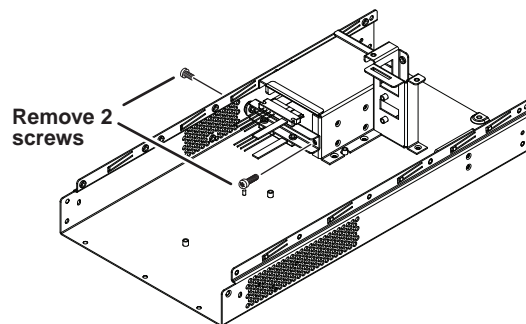
*Note: When installing the board, first engage all screws loosely to index board position, then tighten.*



When installing, follow [“Installing components and dressing cables”](#) on page 102.

## Drive cable assembly removal

To remove the drive cable assembly first remove the top cover, unfasten/disconnect cables, remove the rear panel, remove the carrier board, remove the power supply, then proceed as illustrated.



When installing, follow [“Installing components and dressing cables”](#) on page 102.

## Installing components and dressing cables

Materials needed:

- Cable ties, as provided in FRU kit

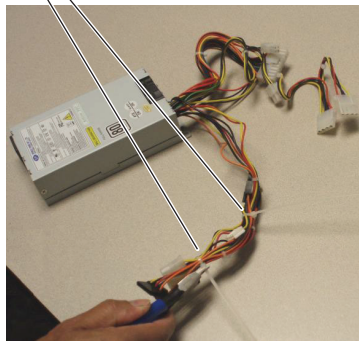
When installing internal components, follow the steps below, especially for cable routing and dressing.

**NOTE: Take care with cable dressing, as cables must be trapped in the lower chassis to maintain clearance for codec module removal and installation. Incorrectly dressed cables can damage the codec module.**

When following the steps below, also refer to removal procedures earlier in this section, with re-assembly being the reverse of the removal procedure.

1. If replacing a midplane board, install it in the chassis.
2. If replacing a power supply, pre-dress unused cables as illustrated:

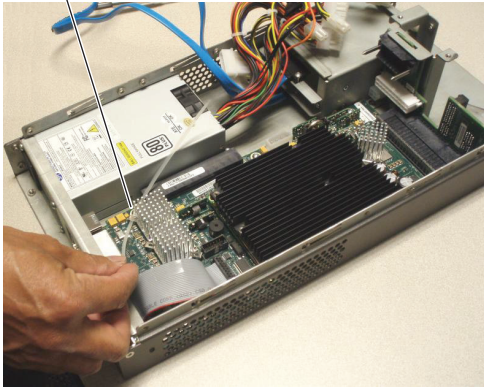
① Attach and trim 2 cable ties



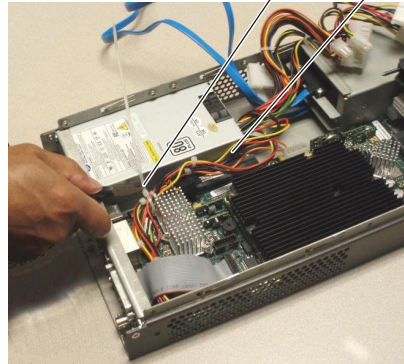
**NOTE: Use the faulty power supply that you removed as a model for cable dressing.**

3. If replacing a power supply, install it in the chassis.
4. Install the carrier module.
5. Install the rear panel.
6. Dress and connect cables as illustrated.

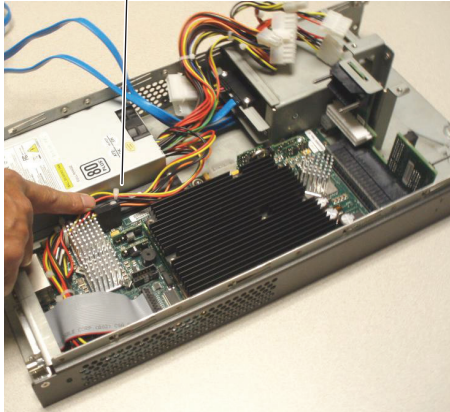
1 Thread cable tie through heat sink clip



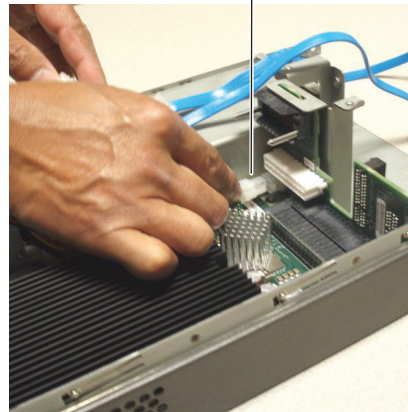
2 Route the bundle of unused cables, fasten with cable tie, and trim



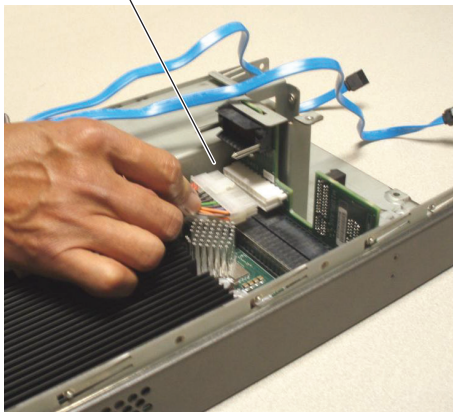
3 Flatten cables along unused PCI connector



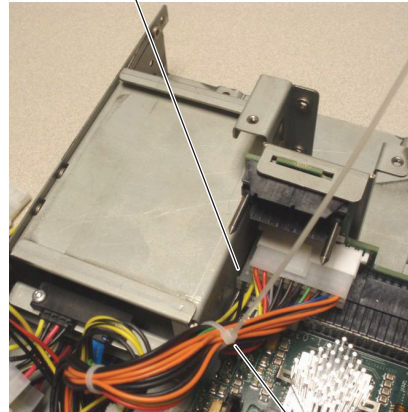
4 Connect power cable



5 Connect main power cable

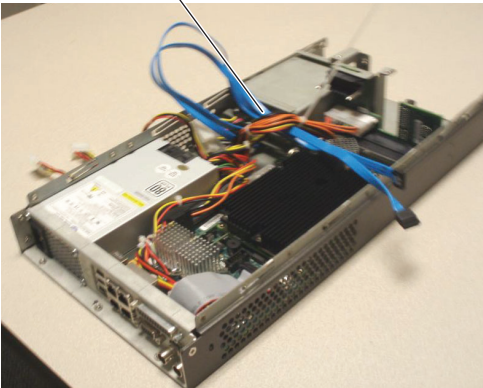


6 Tuck unused cable under main power connector, between drive chamber and carrier board connector

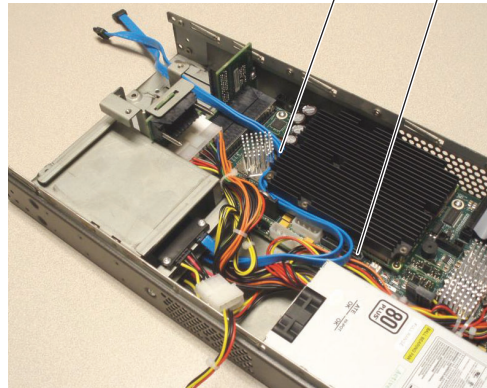


7 Bundle cables with cable tie and trim.

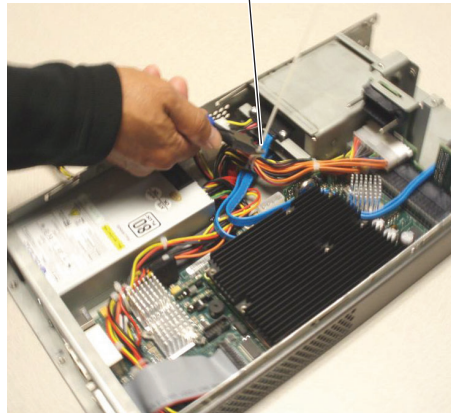
**8** Route disk cable under power cable bundle



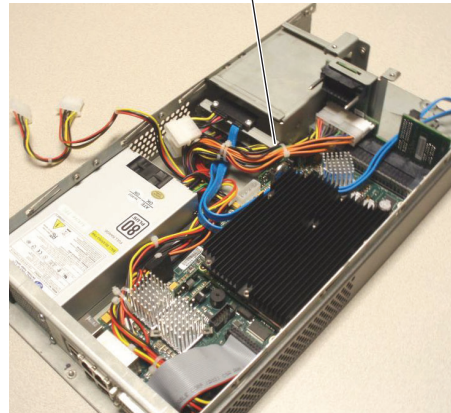
**9** Route disk cable around heat sink, trapping power cables beneath



**10** Bundle excess power cables, fasten with cable tie, and trim



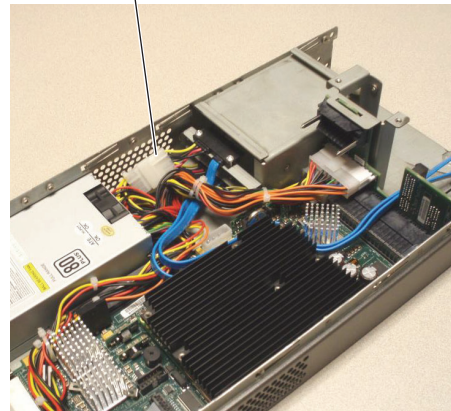
**11** Trap cable bundle under disk cable assembly bracket



**12** Connect 2 power supply connectors



**13** Roll and tuck power supply connectors under the main bundle of power cables



7. When cable dressing is complete, make sure that no cables protrude above the level of the drive chamber top.

8. Install the top cover.



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