

Monitoring the K2 L2 and L3 RAID with NetCentral

This document describes how to set up the K2 Level 2 (L2) or Level 3 (L3) RAID for monitoring with NetCentral software.

For information about the overall NetCentral system, read the *NetCentral User Guide*.

Table of Contents

<i>Before you begin monitoring with NetCentral</i>	<i>2</i>
<i>Adding the K2 L2 or L3 RAID to NetCentral.....</i>	<i>2</i>
<i>Generating the K2 Storage System view automatically</i>	<i>2</i>
<i>Manually adding the K2 L2 or L3 RAID to NetCentral.....</i>	<i>3</i>
<i>Monitoring the K2 L2 or L3 RAID with NetCentral</i>	<i>5</i>
<i>Monitoring K2 L2 or L3 RAID Storage</i>	<i>5</i>
<i>Monitoring K2 L2 or L3 RAID System.....</i>	<i>6</i>
<i>Monitoring K2 L2 or L3 RAID Modules.....</i>	<i>7</i>
<i>Monitoring K2 L2 or L3 RAID Thermal</i>	<i>8</i>
<i>Monitoring K2 L2 or L3 RAID Power</i>	<i>9</i>
<i>Monitoring K2 L2 or L3 RAID Versions.....</i>	<i>9</i>
<i>Monitoring K2 L2 or L3 RAID Events</i>	<i>10</i>
<i>Monitoring K2 L2 or L3 RAID Trends.....</i>	<i>11</i>
<i>Troubleshooting the K2 L2 or L3 RAID with NetCentral.....</i>	<i>12</i>
<i>For more information.....</i>	<i>12</i>

Before you begin monitoring with NetCentral

The following systems must be in place before you can begin monitoring your K2 L2 or L3 RAID with NetCentral:

- NetCentral manager software must be installed and operating correctly on the NetCentral server. Refer to the *NetCentral User Guide*.
- The NetCentral server and the K2 L2 or L3 RAID must be on the network and be able to communicate with one another. To verify, use the *ping* command at the MS-DOS command prompt.
- The K2 L2 or L3 RAID device provider must be installed on the NetCentral server PC. In NetCentral manager, click **File | New | Device Provider** and follow the on-screen instructions to install the **PFR700_K2 RAID** device provider. Refer to the *NetCentral User Guide* for a detailed procedure.
- If you are using a PFR700 device, the firmware on the LAN card must be version GS03 or higher. The K2 L2 RAID device ships with this version. (Since the K2 L3 RAID does not have a LAN card, there is no similar firmware requirement.) If you need to update the firmware, contact your Grass Valley representative.

When these prerequisites are met, continue with the next procedure [“Adding the K2 L2 or L3 RAID to NetCentral”](#).

Adding the K2 L2 or L3 RAID to NetCentral

There are two ways to add a K2 L2 or L3 RAID to NetCentral, as explained in the following sections:

- [“Generating the K2 Storage System view automatically”](#)
- [“Manually adding the K2 L2 or L3 RAID to NetCentral”](#)

Generating the K2 Storage System view automatically

The K2 System Configuration application can automatically send information to NetCentral about the K2 L2 or L3 RAID storage system devices. This information is sent via a SNMP trap message. When NetCentral receives this information, it automatically adds the K2 Storage System device, creating a unified view for monitoring of the K2 Storage System. When this view is automatically created in NetCentral, it is not necessary to individually add K2 L2 or L3 RAID devices or other K2 Storage System devices.

Use the following procedure to automatically generate the K2 Storage System view, which includes adding the K2 L2 or L3 RAID:

1. Monitor (with NetCentral) the control point PC that runs the K2 System Configuration application.

You must do this before using the K2 System Configuration application to define the K2 Storage System or configure any K2 Storage System devices. This especially means that the control point PC must have its SNMP trap destination set to the NetCentral server PC, so that NetCentral receives the SNMP traps sent by the control point PC. This is true even if the control point PC and the NetCentral server PC are the same machine.

2. Define and configure the K2 Storage System using the K2 System Configuration application.

As you click **Finish** at the conclusion of each configuration wizard, the K2 System Configuration application sends an SNMP trap message to NetCentral and NetCentral adds the configuration information. A folder created this way displays blue in NetCentral.

Refer to the *K2 Storage System Instruction Manual* for installation instructions that incorporate these steps.

When you use the K2 System Configuration application to reconfigure a K2 Storage system or device, upon saving the configuration the changes are automatically sent to NetCentral, which then updates accordingly. This means that if you manually change K2 Storage System information in NetCentral (designated by the blue folder color), your changes could later be overwritten by an automatic update from the K2 System Configuration application.

Manually adding the K2 L2 or L3 RAID to NetCentral

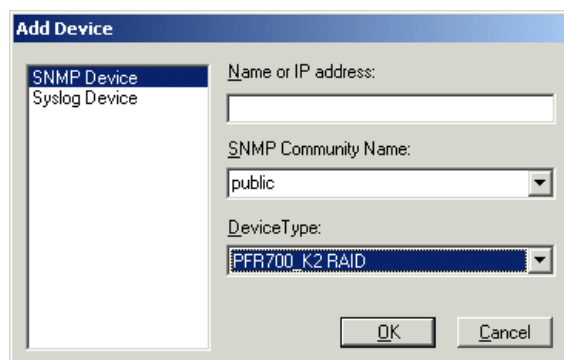
When it is necessary to individually add a K2 L2 or L3 RAID to the NetCentral system, use the following procedure. This adds the K2 L2 or L3 RAID to the NetCentral manager tree view and automatically sets the SNMP trap destination on the K2 L2 or L3 RAID. Setting the SNMP trap destination ensures that K2 L2 or L3 RAID status messages are sent to the NetCentral server.

NOTE: *If you are using redundant L2 or L3 RAID, keep in mind that the K2 L3 RAID has an agent on each controller. Therefore, each controller must be configured. (Be sure that both controllers are configured in the same manner, e.g. identical community names.) Because the L2 RAID has a LAN card, you only need to configure it once.*

To add the K2 L2 or L3 RAID to the NetCentral tree view:

1. If you have not already done so, log on to NetCentral manager with NetCentral administrator-level access rights. Refer to the *NetCentral User Guide* for information about logging on and application security.
2. In NetCentral, click **File | New | Device**.

The Add Device dialog box opens.



3. Enter the K2 L2 or L3 RAID IP address.

By default, the RAID device uses the community name `public`. If your site's security policies dictate using a different SNMP community name, contact your Grass Valley representative.

4. Select **PFR700_K2 RAID** in the Device Type drop-down list, then click **OK**.

NetCentral Manager attempts to communicate with the RAID device. When contact is made, the RAID device is added to the NetCentral tree view and NetCentral automatically sets the SNMP trap destination address on the RAID. This may take a few moments.

5. In the tree view, hover your cursor over the RAID. The L2 RAID's SNMP agent is on the LAN card, so even if the RAID chassis has two controllers, the chassis is represented as one device in NetCentral. The L3 RAID's SNMP agent is on the controller, so if the RAID chassis has two controllers, the chassis is represented as two devices in NetCentral. Identify the tooltip displayed, and proceed as follows:

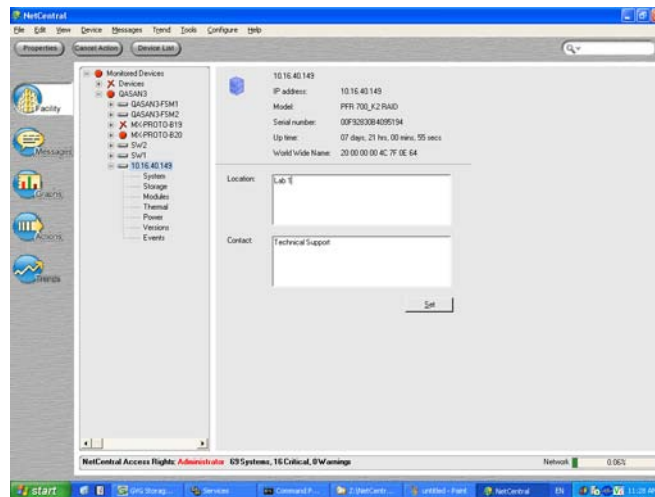
- If the tooltip only identifies the device as an L2 or L3 RAID and has no message regarding trap validation, it means that NetCentral successfully entered the IP address of the NetCentral server as an SNMP trap destination on the RAID and then successfully received a test trap message from the device. A RAID with this tooltip is fully monitored by NetCentral and requires no further steps.
- If an L2 or L3 RAID has a "...Traps not validated..." tooltip message, one of the following conditions applies. In the Messages view, check the L2 or L3 RAID's SNMP Trap Target Status message to determine which condition applies and then proceed as indicated:
 - NetCentral is in the process of testing the L2 or L3 RAID to validate its SNMP trap messages. After a few minutes check the RAID again for a change in its SNMP Trap Target Status message reflecting the test results.
 - NetCentral tried to configure SNMP properties but was not successful. In most cases this means you must configure SNMP properties manually. You can set the SNMP trap destination by launching the Grass Valley Storage Utility from within the K2 System Configuration application. Refer to the *K2 Storage System Instruction Manual* for procedures. To configure other SNMP properties, contact your Grass Valley representative.

Monitoring the K2 L2 or L3 RAID with NetCentral

After completing the setup procedure, you are ready to monitor the K2 L2 or L3 RAID using NetCentral. Most monitoring features are common for all types of monitored devices and are explained in the *NetCentral User Guide*. The monitoring features explained in the following sections are unique to the K2 L2 or L3 RAID.

Monitoring K2 L2 or L3 RAID Storage

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.



3. Expand the K2 L2 and L3 RAID device icon, then select the **Storage** subsystem.
4. Click the **Physical Disks** tab.

Logical Disks		Physical Disks	
Location	State	Block Reassigns	
00	Ready	0	
01	Ready	0	
02	Ready	1	
03	Ready	1	
04	Ready	0	
05	Ready	2	
06	Ready	2	
07	Ready	2	
08	Ready	0	
09	Ready	2	
0A	Ready	3	
0B	Ready	3	
0C	Ready	3	
0D	Ready	3	
0E	Ready	3	

This subsystem property page provides information on the disks in the K2 L2 or L3 RAID chassis. The physical disk numbering is different from the K2 Storage Utility. In Storage Utility, the physical disk numbering is reported in hex for the L3 RAID chassis, while the L2 RAID chassis is reported in decimal. In NetCentral, the disk numbering of both the L2 and L3 RAID chassis is reported in hex.

5. Click the **Logical Disks** tab.

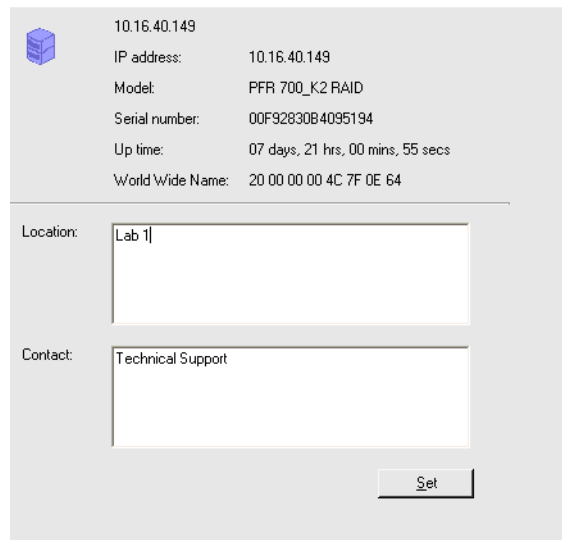
Logical Disks		Physical Disks	
LUN ▲		Bind State	Capacity (GB)
0		Bound	35
1		Bound	35
2		Bound	571
3		Bound	571
4		Bound	571
5		Bound	571
6		Bound	571
7		Bound	571
8		Bound	571
10		Bound	571
11		Bound	571
12		Bound	571

This subsystem property page provides information on logical drives that provide the media storage. A logical drive consists of one or more physical disks that are bound as a RAID Logical Unit Number (LUN). On external storage models, these logical drives are RAID 1, 3, or 5 LUNs, each of which is made up of multiple physical disks that reside in the RAID storage device chassis.

Monitoring K2 L2 or L3 RAID System

The System subsystem displays the basic information about the K2 L2 or L3 RAID system. You can include information such as the location of the system and the contact person.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **System** subsystem.



10.16.40.149
IP address: 10.16.40.149
Model: PFR 700_K2 RAID
Serial number: 00F92830B4095194
Up time: 07 days, 21 hrs, 00 mins, 55 secs
World Wide Name: 20 00 00 00 4C 7F 0E 64

Location:	Lab 1
Contact:	Technical Support

Set

Monitoring K2 L2 or L3 RAID Modules

The Modules subsystem displays the information about the K2 L2 or L3 RAID controllers, power cord, network and expansion adapters. If the status is green, NetCentral is able to monitor the module. If the status is red, NetCentral has detected a problem. If the status is black, NetCentral is unable to detect anything for the module.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **Modules** subsystem.

Description	Status
Controller 0	●
Controller 01	●
Expansion Adapter 02	●
Expansion Adapter 03	●
Expansion Adapter 04	●
Expansion Adapter 05	●
Expansion Adapter 06	●
Expansion Adapter 07	●
Expansion Adapter 08	●
Expansion Adapter 09	●
Expansion Adapter 10	●
Expansion Adapter 11	●
Expansion Adapter 12	●
Expansion Adapter 13	●
Expansion Adapter 14	●
Expansion Adapter 15	●
Expansion Adapter 16	●
Expansion Adapter 17	●
Expansion Adapter 18	●
Expansion Adapter 19	●
Expansion Backboard 01	●
Expansion Backboard 02	●
Expansion Backboard 03	●
Expansion Backboard 04	●
Expansion Backboard 05	●
Expansion Backboard 06	●
Expansion Backboard 07	●
Expansion Backboard 08	●
Expansion Backboard 09	●
Network Adapter 0	●

Monitoring K2 L2 or L3 RAID Thermal

The Thermal subsystem displays information about the status of the L2 or L3 RAID's fans and temperature.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **Thermal** subsystem.
4. Select either the Fans or the Temperature tab.

Fans	Temperature
Description	Status
Base Unit Fan 0	●
Base Unit Fan 01	●
Base Unit Fan 02	●
Base Unit Fan 03	●
Expansion Unit Fan Module 02	●
Expansion Unit Fan Module 03	●
Expansion Unit Fan Module 08	●
Expansion Unit Fan Module 09	●
Expansion Unit Fan Module 10	●
Expansion Unit Fan Module 11	●
Expansion Unit Fan Module 16	●
Expansion Unit Fan Module 17	●
Expansion Unit Fan Module 18	●
Expansion Unit Fan Module 19	●
Expansion Unit Fan Module 24	●
Expansion Unit Fan Module 25	●
Expansion Unit Fan Module 26	●
Expansion Unit Fan Module 27	●

Monitoring K2 L2 or L3 RAID Power

The Power subsystem displays the information about the K2 L2 or L3 RAID power supplies. If the status is green, the power supply is connected and NetCentral is able to monitor it. If the status is red, NetCentral has detected a problem. If the status is black, NetCentral is unable to detect anything.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **Power** subsystem.

Location	Status
Base Unit Power Supply 0	●
Base Unit Power Supply 01	●
Expansion Unit Power Supply 02	●
Expansion Unit Power Supply 03	●
Expansion Unit Power Supply 04	●
Expansion Unit Power Supply 05	●
Expansion Unit Power Supply 06	●
Expansion Unit Power Supply 07	●
Expansion Unit Power Supply 08	●
Expansion Unit Power Supply 09	●
Expansion Unit Power Supply 10	●
Expansion Unit Power Supply 11	●
Expansion Unit Power Supply 12	●
Expansion Unit Power Supply 13	●
Expansion Unit Power Supply 14	●
Expansion Unit Power Supply 15	●

Monitoring K2 L2 or L3 RAID Versions

The Versions subsystem displays information about the specific version of each controller, disk, or network or expansion adapters. If applicable, the serial number is also listed.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **Versions** subsystem.

Item	Version	Serial Number
Controller 0	04VJ	
Controller 1	04VJ	
Network Adapter 0	03VJ	
Network Adapter 1	03VJ	
Expansion Adapter 2		
Expansion Adapter 3		
Expansion Adapter 8		
Expansion Adapter 9		
Expansion Adapter 10		
Expansion Adapter 11		
Expansion Adapter 16		
Expansion Adapter 17		
Expansion Adapter 18		
Expansion Adapter 19		
Expansion Adapter 24		
Expansion Adapter 25		
Expansion Adapter 26		
Expansion Adapter 27		
Disk 4 (146GB 10Krpm)	0006	3HY6SN0G00007434
Disk 5 (146GB 10Krpm)	0006	3HY8HNFK00007455
Disk 6 (146GB 10Krpm)	0006	3HY6SNP70000743E
Disk 7 (146GB 10Krpm)	0006	3HY6QYJA00007433
Disk 8 (146GB 10Krpm)	0006	3HY6SN7B0000743E
Disk 9 (146GB 10Krpm)	0006	3HY6PZ8J00007338
Disk 10 (146GB 10Krpm)	0006	3HY6QVX100007434
Disk 11 (146GB 10Krpm)	0006	3HY6QYAB00007434
Disk 12 (146GB 10Krpm)	0006	3HY6QLEW0000743C
Disk 13 (146GB 10Krpm)	0006	3HY6SNEH0000743C
Disk 14 (146GB 10Krpm)	0006	3HY8HW4490000745

Monitoring K2 L2 or L3 RAID Events

The Events subsystem displays information about the specific events such as error messages or changes in the power states and link connections of the L2 or L3 RAID.

The information displayed in the Events subsystem is used by Grass Valley Service representatives. To send this information to a Grass Valley representative, copy the information in the Description window and paste it into Notepad. Save it as a Text (*.txt) file.

1. In NetCentral, select **Facility**.
2. Expand the NetCentral tree view and locate the K2 L2 and L3 RAID device icon.
3. Click on the **Events** subsystem.

[illegible]

Monitoring K2 L2 or L3 RAID Trends

Click the **Trends** button to see the Trends view. The Trends view pulls specific device parameters and provides you with a daily, weekly, monthly, and yearly view of selected parameters. The following table lists the Trends view graphs for the K2 L2 or L3 RAID and provides explanations:

Name of Trend graph	Explanation of Trend graph
System\ Up Time	<p>Up time essentially is an ever incrementing value that indicates the system is up and running and is measured as an absolute value in minutes; given that the polling rate is more than a minute.</p> <p>Though the value itself is of less significance, it is the ramp graph obtained by plotting these values that proves significant where a downward edge on the ramp indicates a device going offline and a flat line at zero indicating the device downtime.</p> <p>Multiple ramps indicate how often the device was taken down for activities like maintenance or servicing, or simply how many times it was restarted to handle a complete device failure. If the ramps do not coincide when the device was taken down, it could indicate conditions like automatic restarts, and the device may need attention.</p>
Storage\Disk Block Reassigns	<p>Block Reassigns is the count of inaccessible disk blocks reassigned by the controller to another accessible block on the physical disk.</p> <p>When the controller cannot access a particular disk block with a specific number of retry attempts, it reassigns the “inaccessible” block to another block on the physical disk. When the controller performs such a disk block reassignment, all disk access requests made for that block are henceforth redirected to the reassigned block.</p> <p>The controller can only allow a finite number of block reassignments on a physical disk before it disables the physical disk. However the number itself depends on the particular kind of drive, controller hardware or firmware.</p> <p>Typically this should be a zero value. Disks with an increasing number of block reassignments will tend to project disk IO latencies and is typically indicative of disk replacement.</p>

Name of Trend graph	Explanation of Trend graph
Storage\Disk Media Errors	<p>Disk Media Errors is the count of errors encountered by the disk controller when accessing disk blocks on the physical disk.</p> <p>Often the controller can access the disk block with a specific retry policy. When a disk block cannot be accessed via the retry policy the controller reassigns the block.</p> <p>In either case, disk errors are indicative of disk IO latencies, and an increasing number could potentially indicate disk replacement. Typically this should be a zero value.</p> <p>Note that a single “bad block” being repeatedly accessed could cause this value to increase, so there is no definite rule that guarantees that a certain number of errors occurring within a specific time interval would warrant a disk replacement. This is simply provided to view the error occurrence pattern for a physical disk so it could related to other system behaviors.</p>

Troubleshooting the K2 L2 or L3 RAID with NetCentral

NetCentral reports status, warnings, and alarms using messages that are easy to understand. Suggested corrective actions are presented along with failure information. If you have any trouble interpreting any of the problems or suggested solutions, contact Grass Valley Support.

For more information

For more information about NetCentral, how it works, and how to configure and use its features, refer to the *NetCentral User Guide*. You can find an online Help version of this manual on the NetCentral Help menu.