



Replacing Hard Disks on the FortiAnalyzer™

Version 4.0.0

Technical Note

Replacing Hard Disks on the FortiAnalyzer

Version 4.0.0

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Introduction

FortiAnalyzer units are network appliances that provide integrated tools for analysis, archive search, log collection, and data storage. The FortiAnalyzer-400B and higher have multiple hard disk drives that can store data using a RAID array. The RAID array enables the FortiAnalyzer units to provide redundant storage, data protection, faster hard disk access or a larger storage capacity.

If a hard disk fails, it must be replaced. In most cases, you can replace the hard disk while the FortiAnalyzer unit is running.

About this document

This document explains how to replace hard disks in FortiAnalyzer units that have multiple hard disks.

This document contains the following chapters:

- [FortiAnalyzer-400B and 1000B disk replacement](#)
- [FortiAnalyzer-800 disk replacement](#)
- [FortiAnalyzer-800B disk replacement](#)
- [FortiAnalyzer-2000 disk replacement](#)
- [FortiAnalyzer-2000A disk replacement](#)
- [FortiAnalyzer-4000 disk replacement](#)
- [FortiAnalyzer-4000A disk replacement](#)

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FortiAnalyzer-400B and 1000B disk replacement

This section describes how to replace hard disks in a FortiAnalyzer-400B and 1000B.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one in the FortiAnalyzer unit. Install a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)



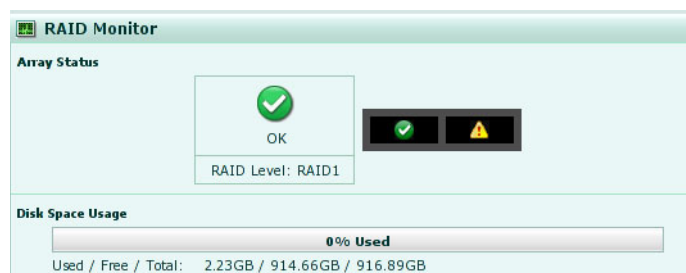
Note: On the FortiAnalyzer-400B and 1000B, only RAID 0 and RAID 1 are supported.

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including its RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 1: The status of a failed hard disk on a FortiAnalyzer-1000B unit as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure it is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

You need a Phillips screwdriver when replacing a hard disk on either the FortiAnalyzer-400B or 1000B.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk on a FortiAnalyzer-400B

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 7](#).
- 2 Remove the screws on both sides of the failed disk.
- 3 Pull out the hard disk.
- 4 Turn the tray over.
- 5 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 6 Hold both the tray and the hard disk, and turn the tray over.
- 7 Lift the failed disk from the tray and disconnect the data and power cables.
- 8 Connect the data cable and the power cable to the new disk.
- 9 Place the new disk in the tray.
- 10 Secure the new disk to the tray with the screws.
- 11 Insert a new hard disk into the empty disk bay and push the disk firmly into the slot until you hear a click.
- 12 Secure the new hard disk in the disk bay with the two screws on each side of the disk, ensuring the screws are in tight.
- 13 In the web-based manager, go to *System > Config > RAID*.
- 14 Select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

To replace a hard disk on a FortiAnalyzer-1000B

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 7](#).
- 2 Remove the faceplate of the FortiAnalyzer unit.

- 3** Pull out the hard disk.
- 4** Turn the tray over.
- 5** Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 6** Hold both the tray and the hard disk, and turn the tray over.
- 7** Lift the failed disk from the tray and disconnect the data and power cables.
- 8** Connect the data cable and the power cable to the new disk.
- 9** Place the new disk in the tray.
- 10** Secure the new disk to the tray with the screws.
- 11** Insert a new hard disk into the empty disk bay and push the disk firmly into the slot until you hear a click.
- 12** Replace the faceplate of the FortiAnalyzer unit.
- 13** In the web-based manager, go to *System > Config > RAID*.
- 14** Select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new disk.

You can view the status of the RAID array's rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

FortiAnalyzer-800 disk replacement

This section describes how to swap hard drives in a FortiAnalyzer-800.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing multiple hard disks](#)



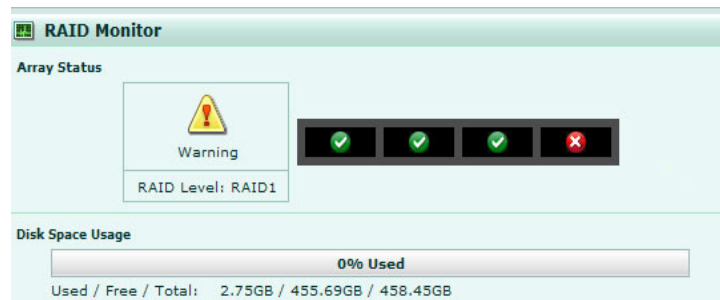
Note: Only perform a hot swap with a RAID setting of either 1 or 5. Hot swapping on any other RAID settings will result in data loss.

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 2: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed disk on the FortiAnalyzer unit, use the following diagram:

Table 1: FortiAnalyzer-800 hard disk configuration

Drive 1	Drive 2	Drive 3	Drive 4
---------	---------	---------	---------

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure it is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

The following tools are required when replacing a hard disk on a FortiAnalyzer-800 unit:

- A key that accompanied the FortiAnalyzer unit to unlock the disk tray.
- A Phillips screwdriver.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 11](#).

2 Press the tabs on both sides of the front panel and pull the faceplate away from the unit, towards you.

The front panel will slide out about two inches and will rotate down, giving you access to the hard disks.

3 Unlock the tray for the failed hard disk, turning the key a quarter turn clockwise.

4 Pull out the tray.

5 Turn the tray over.

6 Remove the screws on the bottom of the tray using the Phillips screwdriver.

7 Hold both the tray and the hard disk, and turn the tray over.

8 Lift the failed disk from the tray and disconnect the data and power cables.

9 Connect the data cable and the power cable to the new disk.

10 Place the new disk in the tray.

11 Secure the new disk to the tray with the screws.

12 Put the tray into the FortiAnalyzer unit.

13 Lock the tray, turning the key a quarter turn counter-clockwise, and replace the front panel.

14 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed hard disk.

The FortiAnalyzer disk controller scans the available hard disks and updates its information with the new hard disk.

15 In *System > Config > RAID*, select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array's rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure it is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

You will need the following tools when replacing multiple disks:

- A key that accompanied the FortiAnalyzer unit to unlock the disk tray.
- A Phillips screwdriver.

Using new, blank disks when hot swapping provides the best performance.

To replace multiple hard disks

- 1 Identify each of the failed hard disks. See [“Identifying a failed hard disk” on page 11](#).
- 2 For the first failed hard disk, press the tabs on both sides of the front panel and pull the faceplate away from the unit, towards you.
The front panel will slide out about two inches and will rotate down, giving you access to the hard disks.
- 3 Unlock the tray for the failed hard disk, turning the key a quarter turn clockwise.
- 4 Pull out the tray.
- 5 Turn the tray over.
- 6 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 7 Hold both the tray and the hard disk, and turn the tray over.
- 8 Lift the failed disk from the tray and disconnect the data and power cables.
- 9 Connect the data cable and the power cable to the new disk.
- 10 Place the new disk in the tray.
- 11 Secure the new disk to the tray with the screws.
- 12 Insert the tray into the empty drive bay on the FortiAnalyzer unit.
- 13 Lock the tray, turning the key a quarter turn counter-clockwise, and replace the front panel.
- 14 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed hard disk.

The FortiAnalyzer disk controller scans the available hard disks and updates its information with the new hard disk.

- 15** In *System > Config > RAID*, select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.
The FortiAnalyzer rebuilds the RAID array with the new hard disk.
- 16** Verify that the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.
If the disk is working properly, green check marks display in Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.
- 17** Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.
- 18** For the next failed disk, unlock the tray for the failed hard disk, turning the key a quarter turn clockwise.
The front panel will slide out about two inches and will rotate down, giving you access to the hard disks.
- 19** Repeat steps 3 to 18, until all failed disks are replaced.

FortiAnalyzer-800B disk replacement

This section describes how to swap hard drives in a FortiAnalyzer-800B.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing a hard disk](#)
- [Replacing multiple hard disks](#)



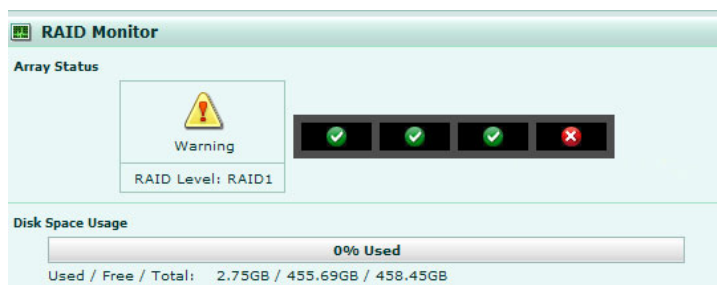
Note: Only perform a hot swap with a RAID setting of either 1 or 5. Hot swapping on any other RAID settings will result in data loss.

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 3: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed disk on the FortiAnalyzer unit, use the following diagram:

Table 2: FortiAnalyzer-800 hard disk configuration

Drive 1	Drive 2	Drive 3	Drive 4
---------	---------	---------	---------

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure it is the same capacity as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 15](#).
- 2 Push the tab on the handle of the failed disk to the right.
- 3 Pull the handle out. The handle will swing away from the unit.
- 4 Pull out the disk from the FortiAnalyzer unit.
- 5 Turn the tray over.
- 6 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 7 Hold both the tray and the hard disk, and turn the tray over.
- 8 Lift the failed disk from the tray.
- 9 Insert the new hard disk in the tray and replace the screws.
- 10 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed hard disk.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 11 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 12 Close the drive handle so the tab on the handle clicks into its locked position.
- 13 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure it is the same capacity as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

Using new, blank disks when hot swapping provides the best performance.

To replace multiple hard disks

- 1 Identify each of the failed hard disks. See [“Identifying a failed hard disk” on page 15](#).
- 2 For the first failed disk, push the tab on the handle of the failed disk to the right.
- 3 Pull the handle out.

The handle will swing away from the unit.

- 4 Pull out the disk from the FortiAnalyzer unit.
- 5 Turn the tray over.
- 6 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 7 Hold both the tray and the hard disk, and turn the tray over.
- 8 Lift the failed disk from the tray.
- 9 Insert the new hard disk in the tray and replace the screws.

- 10 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed hard disk.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.

- 11 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 12 Close the drive handle so the tab on the handle clicks into its locked position.
- 13 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

- 14 Verify the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.

If the disk is working properly, green check marks display in the Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

- 15 Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.
- 16 For the next failed disk, push the tab on the handle of the failed disk to the right.
- 17 Repeat steps 3 to 16, until all failed disks are replaced.

FortiAnalyzer-2000 disk replacement

This section describes how to replace hard disks in a FortiAnalyzer-2000.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

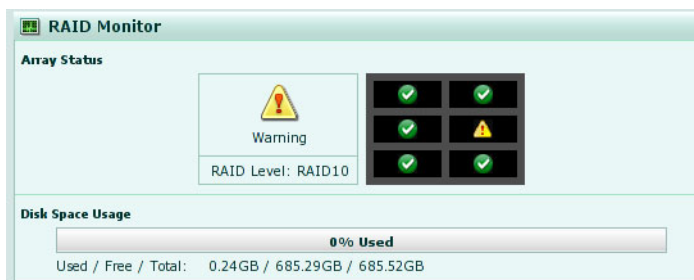
- [Identifying and locating a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing RAID 5 + hot spare](#)
- [Replacing multiple hard disks](#)

Identifying and locating a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 4: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed disk on the FortiAnalyzer unit, use the following diagram:

Table 3: FortiAnalyzer-2000 hard disk configuration

Drive 1 (p1)	Drive 4 (p4)
Drive 2 (p2)	Drive 5 (p5)
Drive 3 (p3)	Drive 6 (p6)

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

- 1 Identify the failed hard disk. See [“Identifying and locating a failed hard disk” on page 19](#).
- 2 Press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 3 Pull out the disk from the FortiAnalyzer unit.
- 4 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.
The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 5 Remove the screws on the side of the disk tray to remove the faulty hard disk.
- 6 Remove the faulty hard disk and replace with a new hard disk and secure with the screws.
- 7 Insert the new hard disk in to the empty drive bay on the FortiAnalyzer unit.
- 8 Close the drive handle so the tab on the handle clicks into its locked position.
- 9 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.
The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing RAID 5 + hot spare



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

The FortiAnalyzer-2000 unit can use one of its hard disks as a hot spare, which is a stand-by disk for RAID, in the event any of the hard disks should fail. When a hard disk fails, the FortiAnalyzer unit begins to automatically substitute the hot spare for the failed drive, integrating it into the RAID array, and rebuilding the RAID's data.

The following procedure explains how to replace a hard disk that has RAID 5 plus hot spare enabled on the FortiAnalyzer-2000 unit.

Using new, blank disks when hot swapping provides the best performance.

To replace RAID 5 + hot spare

- 1 Verify that the hot spare has been integrated into the RAID array.
- 2 Identify the failed disk. See [“Identifying and locating a failed hard disk” on page 19](#).
- 3 Press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 4 Pull out the disk from the FortiAnalyzer unit.
- 5 In the web-based manager, go to *System > Config > RAID*.
- 6 Select the *Trash can* icon in the row of the failed disk.
The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 7 Remove the screws on the side of the disk tray to remove the faulty hard disk.
- 8 Remove the faulty hard disk and replace with a new hard disk and secure with the screws.
- 9 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 10 Close the drive handle so the tab on the handle clicks into its locked position.
- 11 In *System > Config > RAID*, select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array's rebuilding process from the RAID Monitor widget on the Dashboard page. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

Using new, blank disks when hot swapping provides the best performance.

To replace multiple hard disks

- 1 Identify each of the failed disks. See [“Identifying and locating a failed hard disk” on page 19](#).
- 2 For the first failed disk, press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 3 Pull out the disk from the FortiAnalyzer unit.
- 4 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon to start controller rescan in the RAID settings.
The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 5 Remove the screws on the side of the disk tray to remove the faulty hard disk.
- 6 Remove the faulty hard disk and replace with a new hard disk and secure with the screws.
- 7 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 8 Close the drive handle so the tab on the handle clicks into its locked position.
- 9 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon to add the hard disk to the RAID array.
The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.
- 10 Verify the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.
If the disk is working properly, green check marks display in the Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.
- 11 Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.
- 12 For the next failed disk, press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 13 Repeat steps 3 to 12, until all failed disks are replaced.

FortiAnalyzer-2000A disk replacement

This section describes how to replace hard disks in a FortiAnalyzer-2000A.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

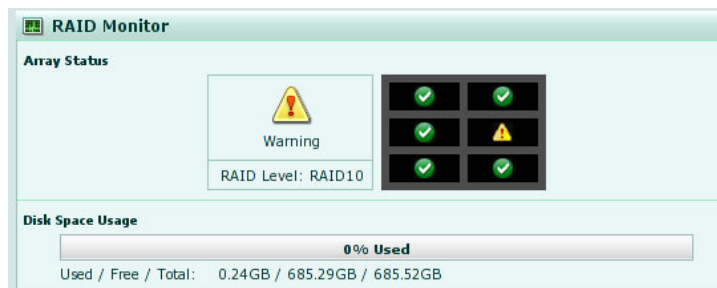
- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing multiple hard disks](#)

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 5: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed disk on the FortiAnalyzer unit, use the following diagram:

Table 4: FortiAnalyzer-2000A hard disk configuration

Drive 1 (p1)	Drive 4 (p4)
Drive 2 (p2)	Drive 5 (p5)
Drive 3 (p3)	Drive 6 (p6)

Replacing a hard disk



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When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 23](#).
- 2 Unscrew the tabs on either side of the FortiAnalyzer faceplate.
- 3 Press the tab on the handle of the failed disk.
- 4 Pull the handle out. The handle will swing away from the unit.
- 5 Pull out the disk from the FortiAnalyzer unit.
- 6 Turn the tray over.
- 7 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 8 Hold both the tray and the hard disk, and turn the tray over.
- 9 Lift the failed disk from the tray.
- 10 Insert the new hard disk in the tray and replace the screws.
- 11 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.

- 12 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 13 Close the drive handle so the tab on the handle clicks into its locked position.
- 14 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

Using new, blank disks when hot swapping provides the best performance.

To replace multiple hard disks

- 1 Identify each of the failed disks. See [“Identifying a failed hard disk” on page 23](#).
- 2 For the first failed disk, press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 3 Pull out the disk from the FortiAnalyzer unit.
- 4 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.
The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 5 Remove the screws on the side of the disk tray to remove the faulty hard disk.
- 6 Remove the faulty hard disk and replace with a new hard disk and secure with the screws.
- 7 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 8 Close the drive handle so the tab on the handle clicks into its locked position.
- 9 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.
The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.
- 10 Verify the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.
If the disk is working properly, green check marks display in Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.
- 11 Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.
- 12 For the next failed disk, press the tab on the handle of the failed disk.
The handle will swing away from the unit.
- 13 Repeat steps 3 to 12, until all failed hard disks are replaced.

FortiAnalyzer-4000 disk replacement

This section describes how to replace hard disks in a FortiAnalyzer-4000.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

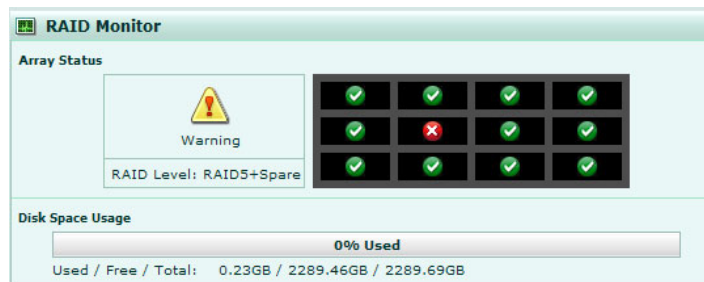
- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing multiple hard disks](#)

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 6: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed disk on the FortiAnalyzer unit, use the following diagram:

Table 5: FortiAnalyzer-4000 hard disk configuration

Drive 1 (p1)	Drive 4 (p4)	Drive 7 (p7)	Drive 10 (p10)
Drive 2 (p2)	Drive 5 (p5)	Drive 8 (p8)	Drive 11 (p11)
Drive 3 (p3)	Drive 6 (p6)	Drive 9 (p9)	Drive 12 (p12)

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 27](#).
- 2 Unlock the faceplate and remove the faceplate from the front of the device.
- 3 Turn the screw on the front of the hard disk clockwise on the failed drive to unlock the drive handle.
- 4 Slide the blue latch to the right.
The drive handle will swing away from the drive.
- 5 Pull out the disk from the FortiAnalyzer unit.
- 6 Turn the disk tray over.
- 7 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 8 Hold both the tray and the hard disk, and turn the tray over.
- 9 Lift the failed disk from the tray.
- 10 Insert the new hard disk in the tray and replace the screws.
- 11 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.

- 12 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 13 Push the drive handle into the disk until the handle snaps into position.
The blue latch will snap into position as well.
- 14 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

To replace multiple hard disks

- 1 Identify each failed hard disks. See [“Identifying a failed hard disk” on page 27](#).
- 2 For the first failed disk, unlock the faceplate and remove the faceplate from the front of the device.
- 3 Turn the screw on the front of the hard disk clockwise on the failed drive to unlock the drive handle.
- 4 Slide the blue latch to the right.
The drive handle will swing away from the drive.
- 5 Pull out the disk from the FortiAnalyzer unit.
- 6 Turn the disk tray over.
- 7 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 8 Hold both the tray and the hard disk, and turn the tray over.
- 9 Lift the failed disk from the tray.
- 10 Insert the new hard disk in the tray and replace the screws.
- 11 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.
The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.
- 12 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 13 Push the drive handle into the disk until the handle snaps into position.
The blue latch will snap into position as well.
- 14 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.
The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.
- 15 Verify the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.
If the disk is working properly, green check marks display in the Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.
- 16 Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.

- 17** For the next failed disk, turn the screw on the front of the hard disk clockwise on the failed drive to unlock the drive handle.
- 18** Repeat steps 4 to 17, until all failed disks are replaced.

FortiAnalyzer-4000A disk replacement

This section describes how to replace hard disks in a FortiAnalyzer-4000A.

When replacing a hard disk, you need to first verify that the new hard disk has the same capacity or greater than the old one. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

This section describes:

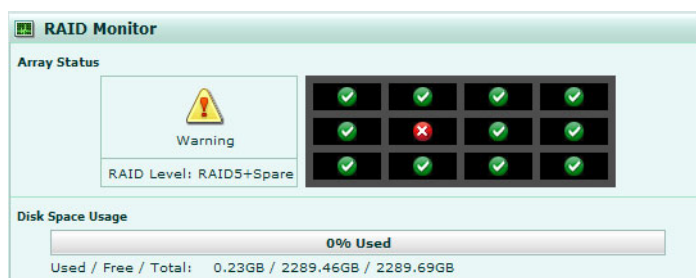
- [Identifying a failed hard disk](#)
- [Replacing a hard disk](#)
- [Replacing multiple hard disks](#)

Identifying a failed hard disk

When a hard disk fails, an alert message appears in the Alert Message Console widget, which is located in *System > Dashboard*. The Alert Message Console widget provides specific information about the failed disk, including when it failed. For more information about the Alert Message Console widget, see the [FortiAnalyzer Administration Guide](#).

The RAID Monitor widget provides a quick way to identify a failed disk, but does not give specific information about when the disk failed including the disk's RAID level. Use the Alert Message Console widget for identifying a failed hard disk. For more information about the RAID Monitor widget, see the [FortiAnalyzer Administration Guide](#).

Figure 7: The status of a failed hard disk as shown in the RAID Monitor widget



To identify a failed disk, go to *System > Dashboard*, and on the Alert Message Console widget, select the More Alerts in the title bar area, and then locate the message that indicates the disk has failed.

To locate the failed hard disk on the FortiAnalyzer unit, use your RAID controller model for that FortiAnalyzer unit. The disk layout on a FortiAnalyzer-4000A depends on the RAID controller model so it is important that you identify the correct failed hard disk.

Replacing a hard disk



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity or greater as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

After identifying the failed hard disk, you can hot swap the failed disk for a new one. Hot swapping refers to removing a failed hard disk and replacing it with a new one while the FortiAnalyzer unit is still in operation.

Using new, blank disks when hot swapping provides the best performance.

To replace a hard disk

- 1 Identify the failed hard disk. See [“Identifying a failed hard disk” on page 31](#).
- 2 Unscrew the tabs on either side of the FortiAnalyzer faceplate.
- 3 Slide the blue catch to the right.
The drive handle will swing away from the drive.
- 4 Pull out the disk from the FortiAnalyzer unit.
- 5 Turn the disk tray over.
- 6 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 7 Hold both the tray and the hard disk, and turn the tray over.
- 8 Lift the failed disk from the tray.
- 9 Insert the new hard disk in the tray and replace the screws.
- 10 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon in the row of the failed disk.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.

- 11 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 12 Push the drive handle into the disk until the handle snaps into position.
The blue latch will snap into position as well.
- 13 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon that appears in the row of the failed hard disk to add it to the RAID array.

The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.

You can view the status of the RAID array’s rebuilding process from the RAID Monitor widget on the Dashboard page. When the RAID array rebuilding process finishes, the RAID Monitor widget displays a green check mark to indicate that the RAID array was successfully rebuilt. You may need to refresh the Dashboard page to verify that the rebuilding process finished.

Replacing multiple hard disks



Caution: Electrostatic discharge (ESD) can damage FortiAnalyzer equipment. Only perform the procedures described in this document from an ESD workstation. If no such station is available, you can provide some ESD protection by wearing an anti-static wrist or ankle strap and attaching it to an ESD connector or to a metal part of a FortiAnalyzer chassis.

When replacing a hard disk, ensure that the new disk is the same capacity as the other disks in the FortiAnalyzer unit. Installing a smaller hard disk will affect the RAID setup and may cause data loss.

When replacing multiple hard disks on your FortiAnalyzer unit, you must replace each one separately. Multiple hard disk replacement must be done this way so that data is not lost.

Using new, blank disks when hot swapping provides the best performance.

To replace multiple hard disks

- 1 Identify each of the failed hard disks. See [“Identifying a failed hard disk” on page 31](#).
- 2 For the first failed disk, unscrew the tabs on either side of the FortiAnalyzer faceplate.
- 3 Slide the blue catch to the right.
The drive handle will swing away from the drive.
- 4 Pull out the disk from the FortiAnalyzer unit.
- 5 Turn the disk tray over.
- 6 Remove the screws on the bottom of the tray using the Phillips screwdriver.
- 7 Hold both the tray and the hard disk, and turn the tray over.
- 8 Lift the failed disk from the tray.
- 9 Insert the new hard disk in the tray and replace the screws.
- 10 In the web-based manager, go to *System > Config > RAID* and select the *Trash can* icon to start the controller rescan in the RAID settings.

The FortiAnalyzer disk controller scans the available hard disks and updates the RAID array for the remaining hard disks. The RAID array status will be “Missing”.

- 11 Insert the new hard disk into the empty drive bay on the FortiAnalyzer unit.
- 12 Push the drive handle into the disk until the handle snaps into position.
The blue latch will snap into position as well.
- 13 In the web-based manager, go to *System > Config > RAID* and select the *Edit* icon to add the hard disk to the RAID array.
The FortiAnalyzer unit rebuilds the RAID array with the new hard disk.
- 14 Verify that the new disk is functioning properly by going to *System > Dashboard*, and viewing its status from the RAID Monitor widget.
If the disk is working properly, green check marks display in the Drive Status Indicator on the RAID Monitor widget. You may need to refresh the Dashboard page to verify that the rebuilding process finished.
- 15 Before proceeding to the next failed disk, make sure that the new disk has been integrated into the array.

- 16** For the next failed disk, slide the blue catch to the right.
The drive handle will swing away from the drive.
- 17** Repeat steps 4 to 16, until all failed hard disks are replaced.

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