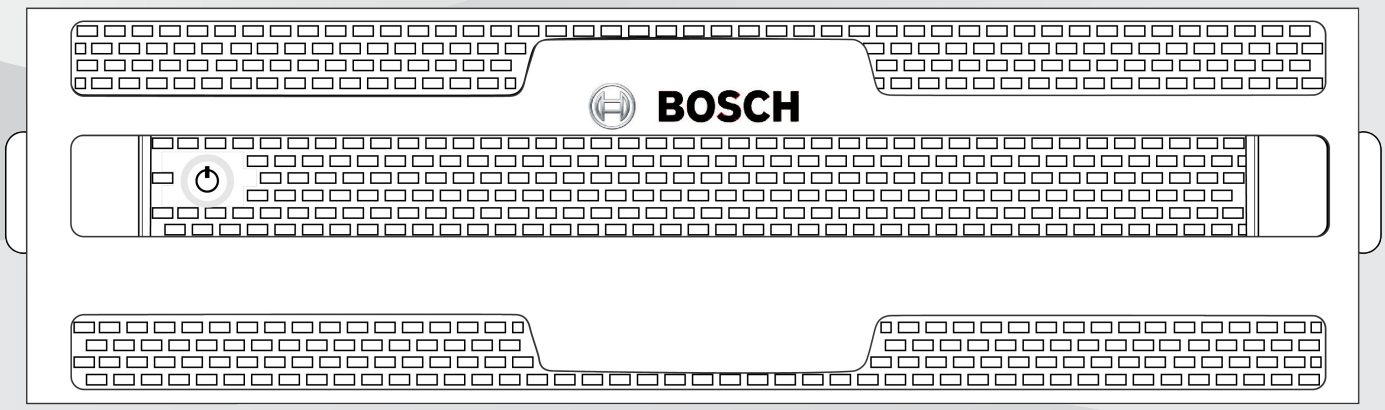
CIP5000 series storage

CIP-5316W-00N / CIP-5424W-00N



en Quick installation guide

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1 Safety

Warning!
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Danger!
Consequences The electronic components within the enclosure are sensitive to damage from Electro-Static Discharge (ESD). Observe appropriate precautions at all times when handling the device or its subassemblies.

Warning!
Turn off the power and disconnect the power cord before servicing this device.

1.1 RoHS compliance

CIP5000 series storage

Hazardous substance table according to SJ/T 11364-2014						
	Pb (Pb)	Hg (Hg)	Cd (Cd)	Cr 6+ (Cr 6+)	PBB (PBB)	PBDE (PBDE)
PCBA	X	O	O	O	O	O
Housing & enclosures	X	O	O	O	O	O
Cables	O	O	O	O	O	O
Power supply units	X	O	O	O	O	O
Batteries	X	O	O	O	O	O
This table was created according to the provisions of SJ/T 11364						
O: The content of such hazardous substance in all homogeneous materials of such component is below the limit defined in GB/T 26572						
X: The content of such hazardous substance in a certain homogeneous material is above the limit defined in GB/T 26572						

2 About this guide

This document gives a brief overview of the CIP5000 series storage, and then provides instructions to install the system hardware in the rack, and configure necessary network and I/O device connections.
For more details on installation and operation of the CIP5000 series storage, refer to the User manual.

2.1 Introduction

Models included in this guide

Model	Interface	Number of drives	Power supplies	Cooling units
CIP-5316W-00N	1000 BASE-T x 2	16	2	2
CIP-5424W-00N	1000 BASE-T x 2	24	2	2

3 System overview

This section gives an overview of the front panel, rear panel and secure cover of CIP5000 series storage.

3.1 Front panel

The front panel hardware components on the CIP-5316W-00N and CIP-5424W-00N are identical except the number of drives.

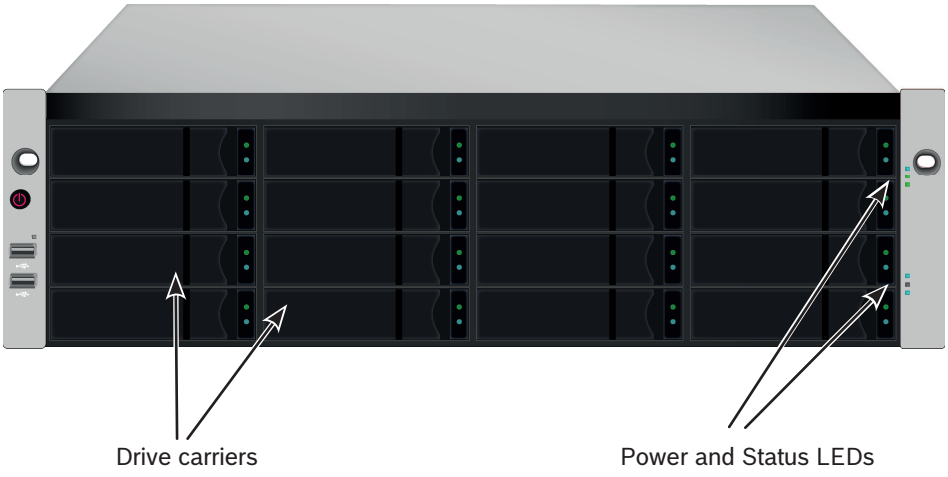


Figure 3.1: CIP-5316W-00N front view

Figure 3.2: CIP-5424W-00N front view

Defective drives shall be replaced immediately in order to ensure data availability. If any drive failed, a hot spare drive automatically replaces a failed drive, thus ensuring the fault-tolerant integrity of the logical drive. The self-contained hardware-based RAID logical drives provide maximum performance in a compact external enclosure.

3.2 Rear panel

The rear panel of CIP-5424W-00N is almost the same as the rear panel of the CIP-5316W-00N except for its higher profile. The form factor of the CIP-5424W-00N is 4U and the form factor of the CIP-5316W-00N is 3U.

The rear panel is where you connect power cables, I/O connections, IPMI port, audio out/in, video (VGA), USB serial ports, COM1 (serial port) and SAS port Backend Controller card. Both enclosures include PCIe slots for added system versatility.

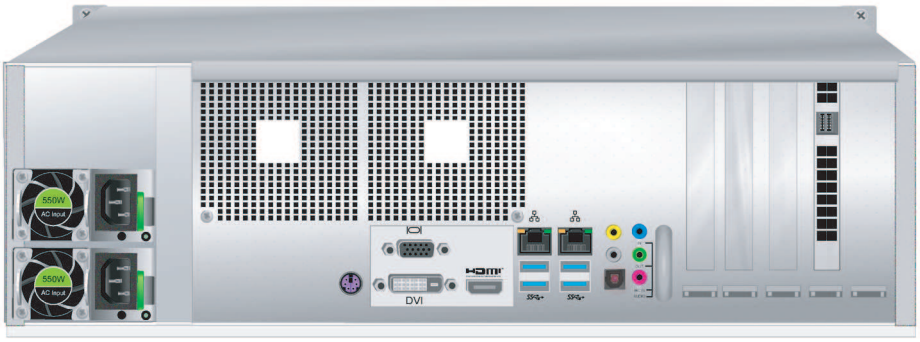


Figure 3.3: CIP-5316W-00N rear view

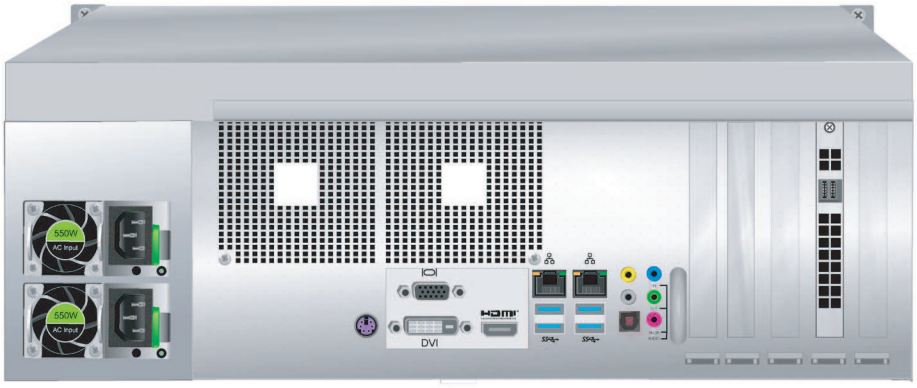
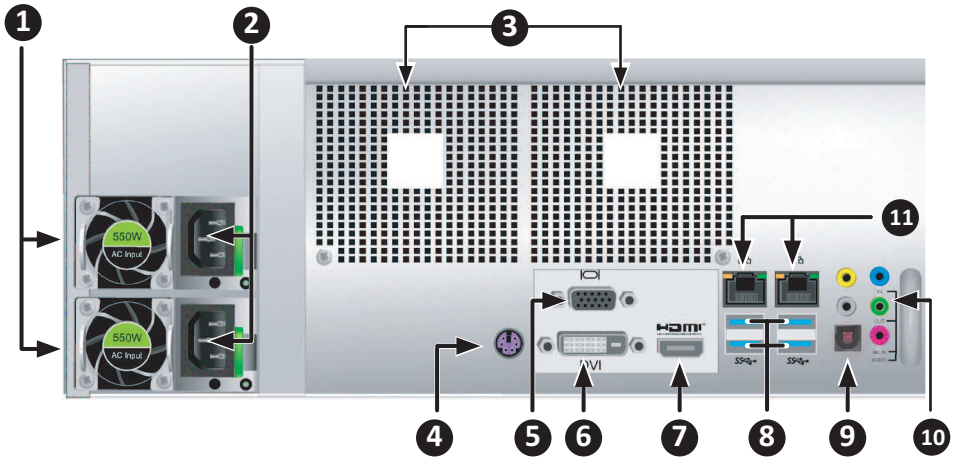


Figure 3.4: CIP-5424W-00N rear view

3.2.1 Rear panel components

The rear panel components of CIP-5316W-00N and CIP-5424W-00N are the same, and each model has two power supply units (PSU).



1	PSU fan vents
2	Power inserts
3	System fan vents
4	PS/2 mouse/keyboard port

5	VGA port
6	DVI port
7	HDMI port
8	USB 3.0 (4 ports)
9	Optical SPDIF Out port
10	Audio In/Out ports
11	1000BASE-T RJ-45 (2 ports)

3.3 Secure cover

The CIP5000 enclosure include a secure cover for better physical security and to prevent unintended or accidental removal of hard drives.
The cover are secured with a single tubular cam lock located near the left side of the cover. Turn the key clockwise to lock, counter clockwise to unlock.

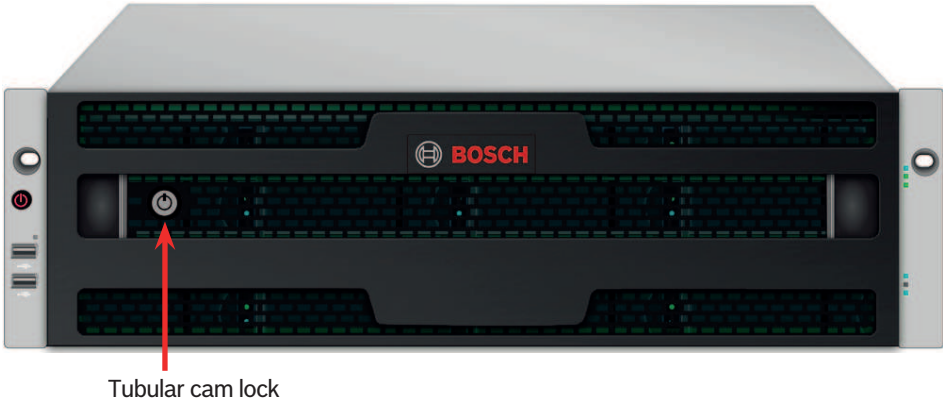


Figure 3.5: CIP-5316W-00N with secure cover (unlocked)

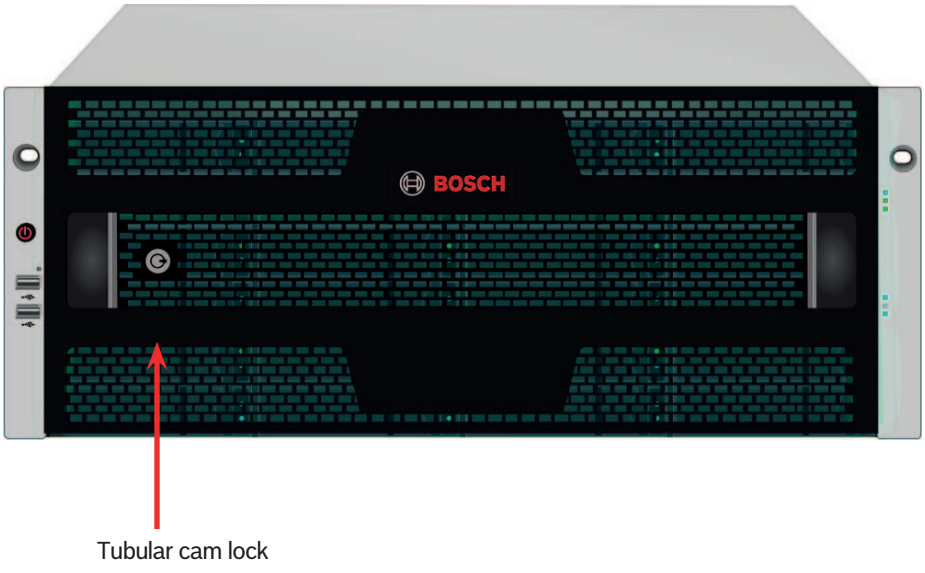


Figure 3.6: CIP-5424W-00N with secure cover (locked)

3.3.1 Install the cover

Figure 3.7: Installing or removing secure cover

To attach the secure cover:

1. Make sure the lock is in the unlocked position. To unlock, insert the key into the lock and turn counter clockwise.
2. Insert the tab on the right side of the cover into the slot receptacle on the right handle.
3. Place the cover in position and push in the latch release (to the left of the keyhole).
4. Push the cover into position so that the tab on the right side inserts into the receptacle on the right handle when releasing the latch.
5. Insert the key and turn clockwise to lock.

To remove the cover, unlock it, press the latch release on the left side and pull the left end out first, holding it with both hands.

4 Setup tasks

Finish the basic setup tasks described in the guide.

4.1 Task 1: unpacking

Note that the two models are nearly identical, except for the number of disk drive bays.

Packing List

The box contains the following items:

- One of the following storage appliances:
  - CIP-5316W-00N
  - CIP-5424W-00N
- Two 1.83m (6 ft) power cords
- Screws for disk drives
- Front panel bezel cover
- Quick installation guide
- (Optional) Sliding rail assembly for rack mounting

4.2 Task 2: install enclosure on the rack

The instructions here apply to 3U 16-bay models CIP-5316W-00N and the JBOD expansion CIP-5316-JBOD, as well as the 4U 24-bay model CIP-5424W-00N.

Caution!
Do not populate any enclosure hardware with hard drives until it has been securely installed in the rack.

Caution!
At least two persons are required to safely lift, place, and attach the enclosure hardware into a rack system.

Caution!
Do not lift or move the enclosure hardware by the handles, or power supplies. Hold the system itself.

Caution!
Do not install the enclosure hardware into a rack without rails to support the system.

Caution!
Only a qualified technician who is familiar with the installation procedure should mount and install the enclosure hardware.

Caution!
Mount the rails to the rack using the appropriate screws and flange nuts, fully tightened, at each end of the rail.

Caution!
Do not load the rails unless they are installed with screws as instructed.

Caution!
The rails available for the CIP enclosure hardware are designed to safely support that CIP enclosure hardware when properly installed. Additional loading on the rails is at the customer's risk.

Caution!
Bosch cannot guarantee that the mounting rails will support your CIP enclosure hardware unless you install them as instructed.

Install the enclosure to the rack using the optional rails.

Notice!
To lighten the enclosure, you can remove the power supplies. Replace the power supplies after the unit is mounted on the rack.

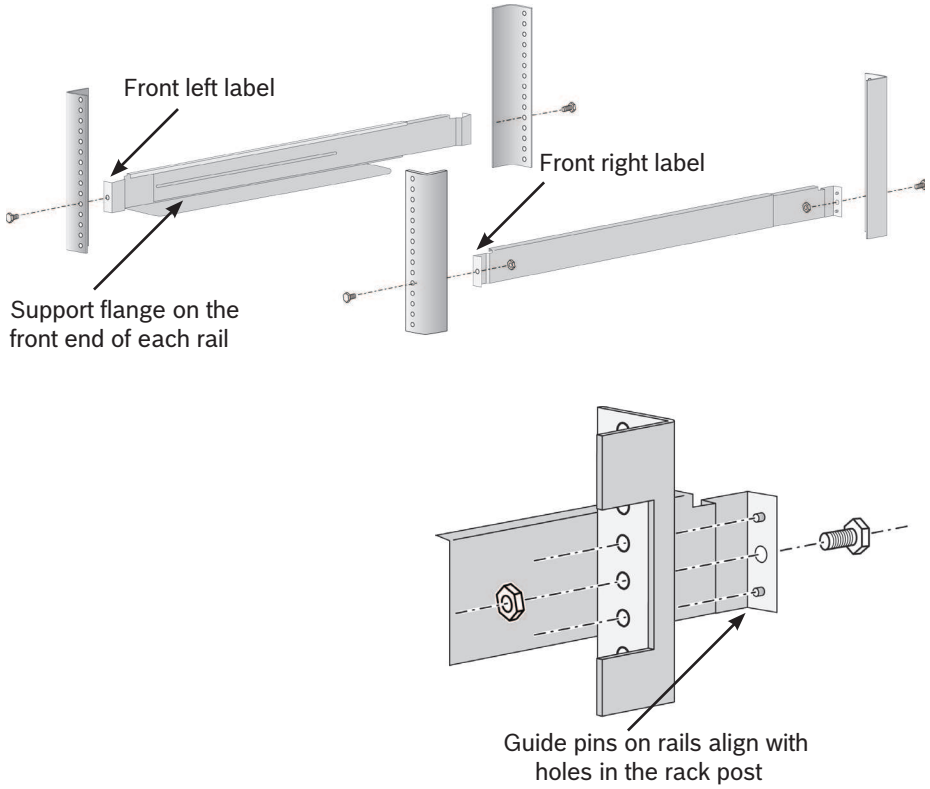


Figure 4.1: Installing the rails onto the rack

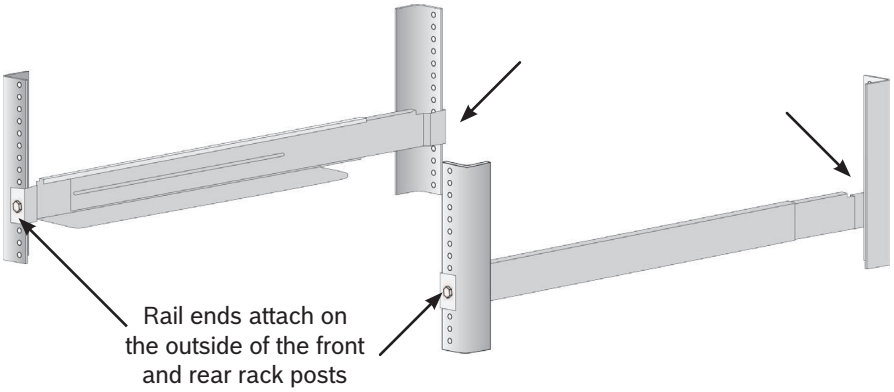


Figure 4.2: Rail ends attach to the outside of each post

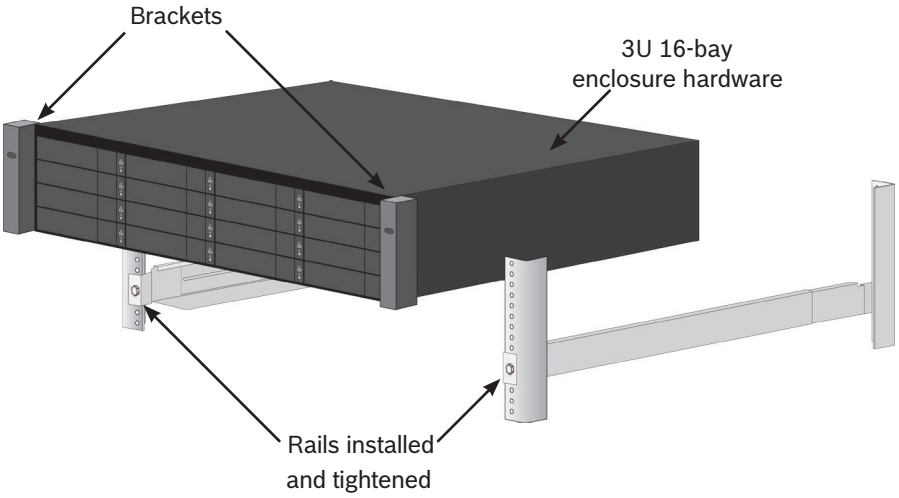


Figure 4.3: Placing the enclosure hardware onto the rack rails

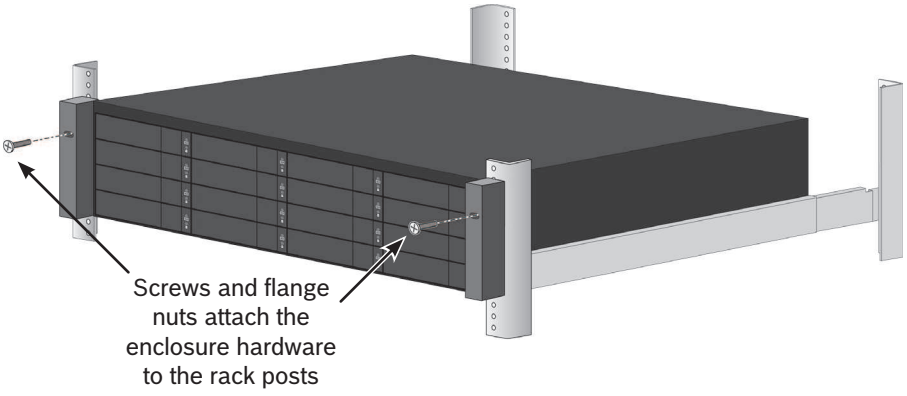


Figure 4.4: Secure to rack

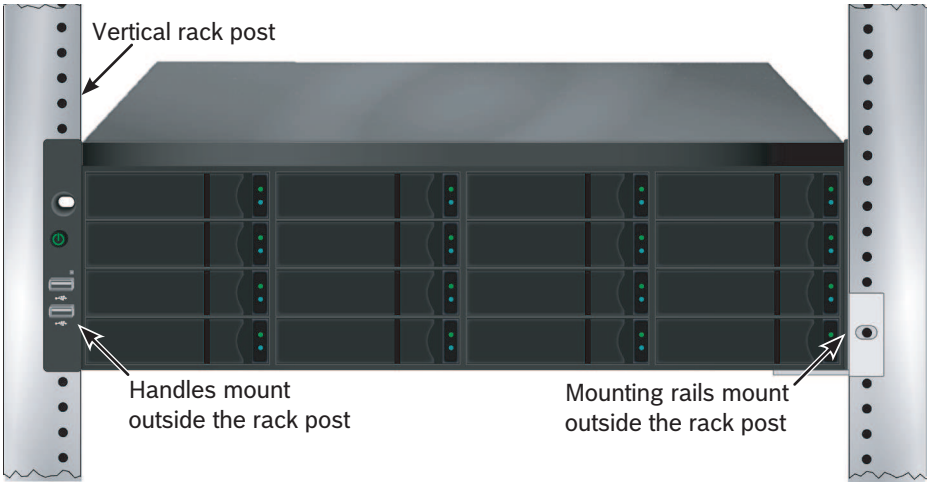


Figure 4.5: System installed in rack

To install the enclosure hardware into a rack with the supplied rails:

1. Check the fit of the rails in your rack system.
2. Adjust the length of the rails as needed.
   - The rear half of the rail slides inside the front half. The rail halves are riveted together, so no adjustment screws are needed.
   - The front-left and front-right rail ends are labeled.
   - Be sure the front rail support is on the bottom facing inward.
   - All rail ends, front and rear, attach at the outside of the rack posts.
   - The guide pins at the rail ends align with the holes in the rack posts.
   - Use the attaching screws and flange nuts from your rack system. Tighten the screws and nuts according to instructions for your rack system.
3. Place the enclosure hardware onto the rails.
4. Secure the enclosure hardware to the rack.
   - The unit attaches to the rack posts using the included screws and flange nuts.
   - One screw each side, in the upper hole only.

4.3 Task 3: install disk drives

The CIP-5316W-00N and CIP-5424W-00N support SATA/SAS 3.5-inch hard disks.

4.3.1 Drive slot numbering

You can install any suitable disk drive into any slot in the enclosure.

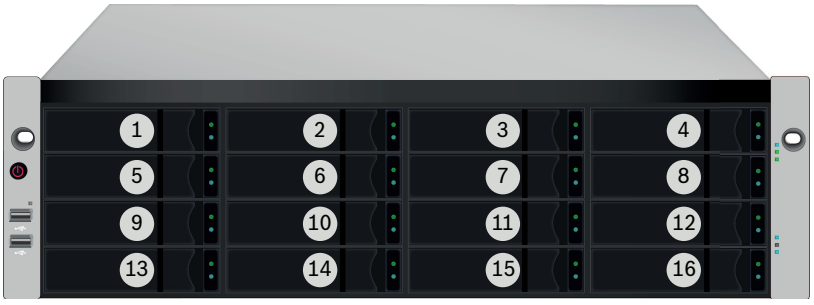


Figure 4.6: Drive slot numbering for 3U models

Figure 4.7: Drive slot numbering for 4U models

Slot numbering is mapped in the web-based system Management GUI.

Insert all of the drive carriers into the enclosure to ensure proper airflow, even if you do not populate all the carriers with disk drives.

Caution!

Swing open the drive carrier handle before you insert the drive carrier into the enclosure.

4.3.2 Remove the drive carrier

The drive carrier accommodates 3.5-inch drives.

Caution!

The CIP5000 models support hot-swapping disk drives.

To avoid hand contact with an electrical hazard, remove only one drive carrier at a time.

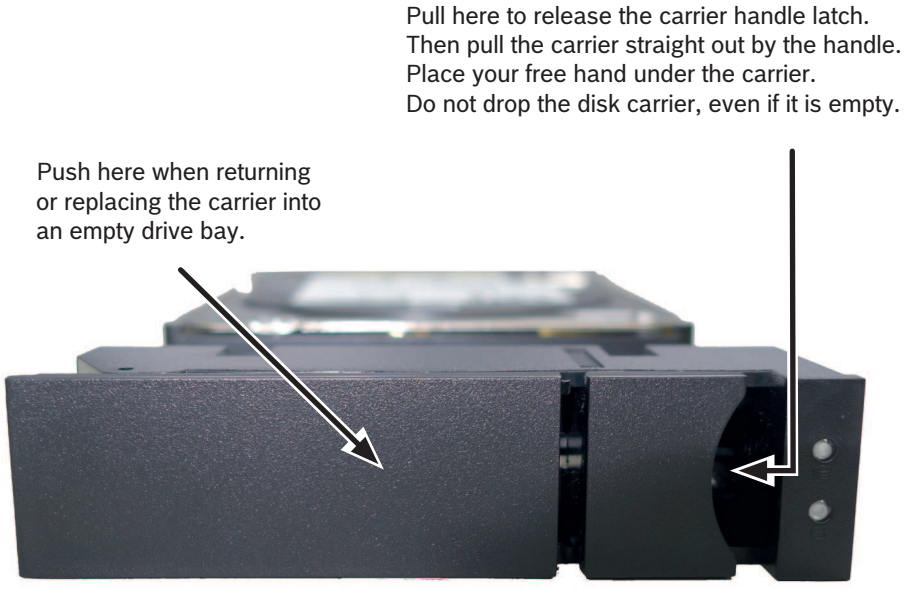


Figure 4.8: Disk carrier with HDD installed (front view)

4.3.3 Install 3.5" disk drive in the carrier

Obey the following instructions to install 3.5” hard disk drives into the drive carriers.

1. Remove a disk drive carrier.
2. Carefully lay the disk drive into the drive carrier at the front, so that the screw holes on the sides line up correctly with the power and data connectors facing away from the carrier handle.
3. Insert the screws through the holes in the drive carrier and into the sides of the disk drive.
   - Install only the counter-sink screws supplied with the drive.
   - Install four screws per drive.
   - Snug each screw. Be careful not to over-tighten.
4. Reinstall the drive carrier into the enclosure.

Repeat steps 1 through 3 until all of your disk drives are installed.

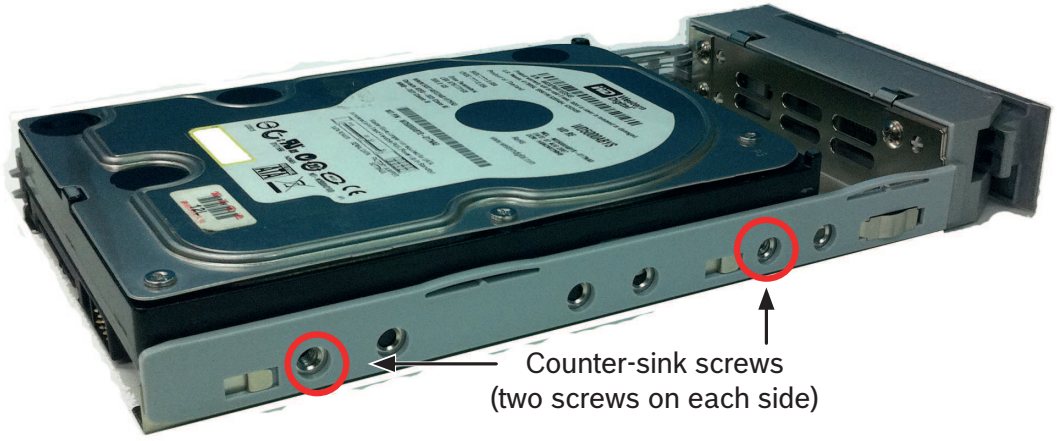


Figure 4.9: SATA disk drive mounted in a drive carrier

4.4 Task 4: establish I/O connections

This section describes how to establish a connection and login as the administrator to the operating system.

There are two methods to establish the physical connections used for management of the device:

- Connect directly to the server with the keyboard, mouse and monitor.
- Remotely through the network using the web-based Management GUI.

For the initial system configuration, obey the following instructions to connect the keyboard and monitor so you can login to the operating system, then change the network settings for the Ethernet ports to suit your network.

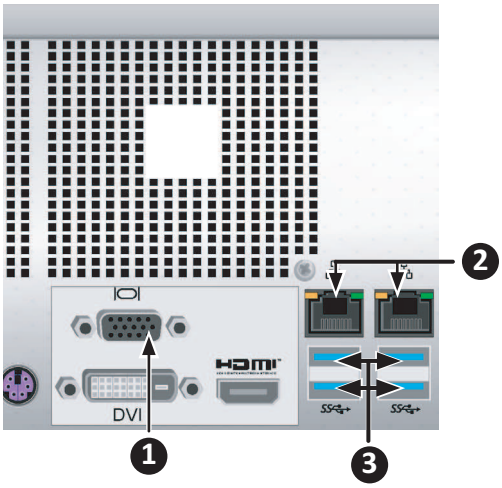


Figure 4.10: I/O ports on the rear panel

Connections for system management on rear panel:

1. VGA port
2. 1000BASE-T RJ-45 ports
3. USB 3.0 ports

4.4.1 Initial setup

Use a USB or PS/2 keyboard and a VGA monitor to establish a direction connection to the Windows operating system.

All the I/O ports needed to do this are located on the rear panel. Connect a monitor, keyboard and mouse to the appropriate port and you will be ready to login after the server has booted up.

For instructions on how to login as administrator to the Windows OS user interface, refer to *Task 6: login to windows, page 19*.

4.4.2 Network connection

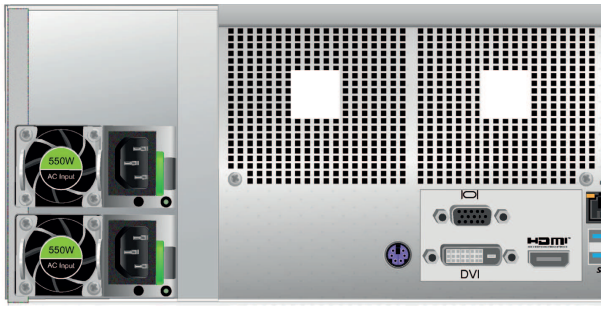
There are two 1 Gb/s Ethernet RJ-45 ports on the rear panel for connection to an Ethernet network. After logging into the Management GUI as the administrator, you can change the network settings.

To connect the server to a local Ethernet for management:

1. Attach one end of an Ethernet cable to the network connector or standard NIC in the Host PC. Attach the other end of the Ethernet cable to one of the ports on the standard network switch.
2. Attach one end of an Ethernet cable to one of the ports on the standard network switch. Attach the other end of the Ethernet cable to an Ethernet port (1000 BASE-T) on the back of the server.

4.5 Task 5: connect power and power on

Insert one power cable into the power receptacle for each power supply unit (PSU) and connect the each PSU to a suitable power source. The enclosure is equipped with two PSU using an N+1 arrangement.



Notice!
The enclosure is equipped with LED indicators on the power supply units. Check the LEDs after powering the devices on to make sure the cooling and power status for the power module is normal.

4.5.1 Power on

With the power supplies connected, the system can now be powered on.
To power on the subsystem, press the power button on the left handle, then observe OPAS LED on the left handle and LEDs on the right handle.

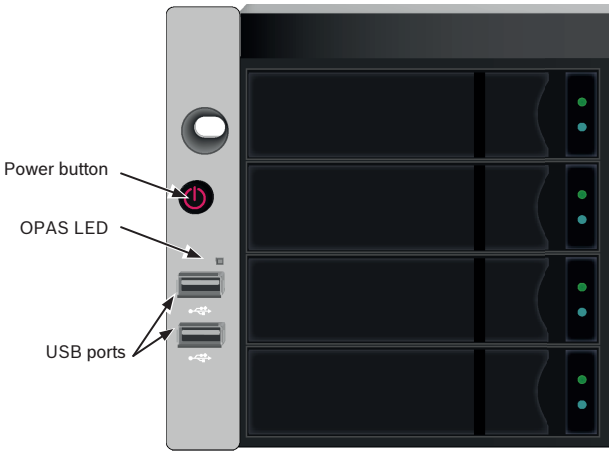


Figure 4.11: Front panel components on the left handle

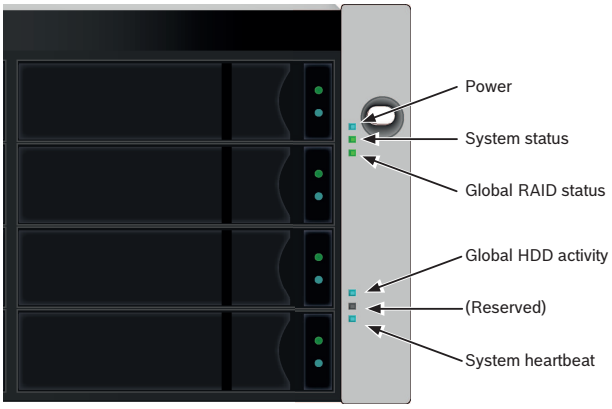


Figure 4.12: Front panel LEDs on the right handle

4.5.2 Front panel LED behavior

The table below describes LED behavior when boot-up is finished and the system is operating normally:

LED	Description
Power	Blue - System is powered on.
System status	Green - System is normal. Red - System trouble. Such as LD offline, fan malfunction, voltage out of range, system temperature alert. Red flash - HDD high temperature alert Off steady - System is not ready.
Global RAID status	Green - Status is normal. Red - RAID volume is offline. Orange - Critical state of any logical drive, or system is rebuilding.
Global HDD activity	Blue flash - One or more drives are being accessed. Blue - No drives are being accessed.
System heartbeat	Blue flash - Firmware and software are operating normally.
OPAS USB	Green - OPAS device (USB disk) is detected. Green flash - OPAS operation is in progress. Red - OPAS operation has failed.

4.5.3 Disk drive LEDs

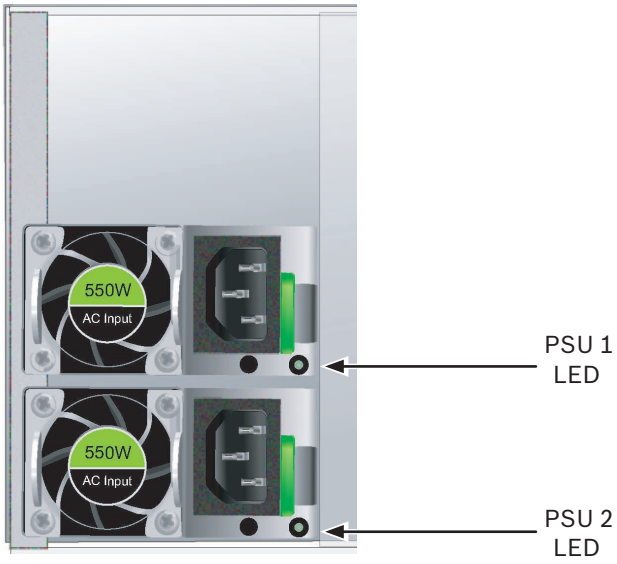
Figure 4.13: Hard disk drive carrier LEDs

There are two LEDs on each drive carrier. They report activity of the drive, and current condition of the drive.

LED	Description
Disk status	Green - HDD is configured and working properly. Red - HDD requires manual replacement. Orange - Status notification of background RAID activity on this articular HDD, and no user action is required.
Disk activity	Blue flash - During drive activity.

4.5.4 PSU LEDs

After powering on the subsystem, check the LEDs on each power supply on the rear of the device.



LED	Description
PSU 1 or PSU 2	Green - normal operation Red or Orange - a problem or unit failure

4.5.5 Rear panel LED behavior

When system boot-up is finished, use the LEDs on the controller on the rear of the device to monitor various functions.

LED	Description
Ethernet	The LED locates on the upper left of each port: Orange - Ethernet connected. Orange flash - There is activity on the port. Off steady - No connection has been established.
Link/Act and Speed	The LED locates on the upper right of each port: Orange - 100 Mbps Green - 1000 Mbps

4.6 Task 6: login to windows

For Windows installations, once the system has booted up it is necessary to configure various options to complete the OS setup.
You will be prompted to select a default language and other user interface preferences. Obey the instructions on screen to complete your preferences selection and to create a user name and password for the administrator. After completing these final tasks, the Windows desktop appears.
There are two quick link icons, one for a web browser connection to CIP Management GUI, and the other for the file that contains user documents.

4.7 Task 7: create logical drives

This section describes how to configure logical drives (LD) using the CIP Management GUI.

4.7.1 Log into management GUI

Double click the Management GUI link icon (WebPAM PROe) on the desktop to launch the default browser and go to the login page.

When the log-in screen appears:

– Type administrator in the User Name field.
– Type password in the Password field.
– Click the **Login** button.

The User Name and Password are case sensitive

After logging in, the Management GUI opening screen appears. If there are any un-configured physical drives in the enclosure, an Array Configuration menu also appears.

Notice!

Make a Bookmark (Firefox) or set a Favorite (Internet Explorer) of the Login Screen so you can access it easily next time.

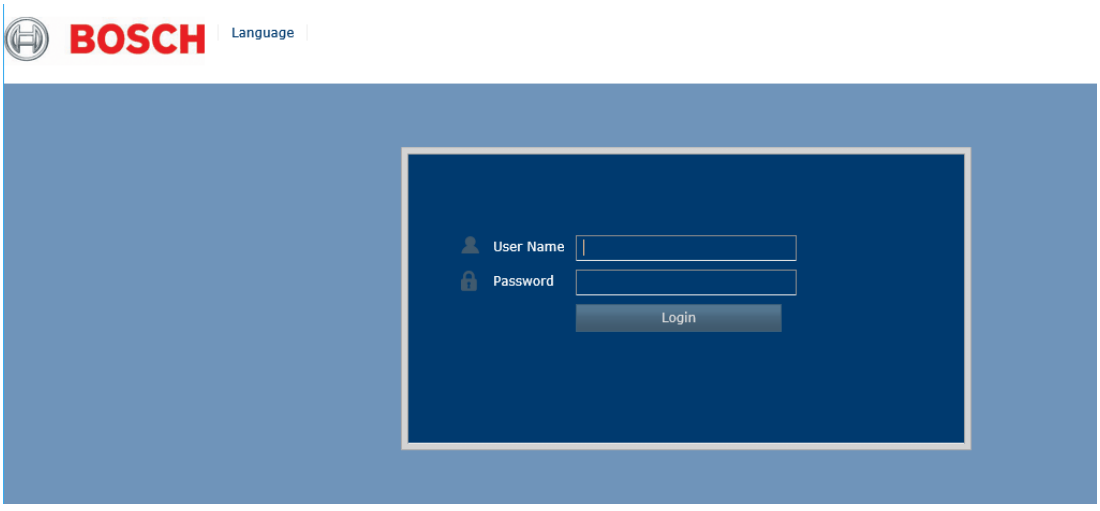
4.7.2 Choose a language

Management GUI displays in English and Simplified Chinese.

Choose your preferred language as one of following ways:

– Select the Language from the menu header in the Login screen.
– Click the language you prefer.

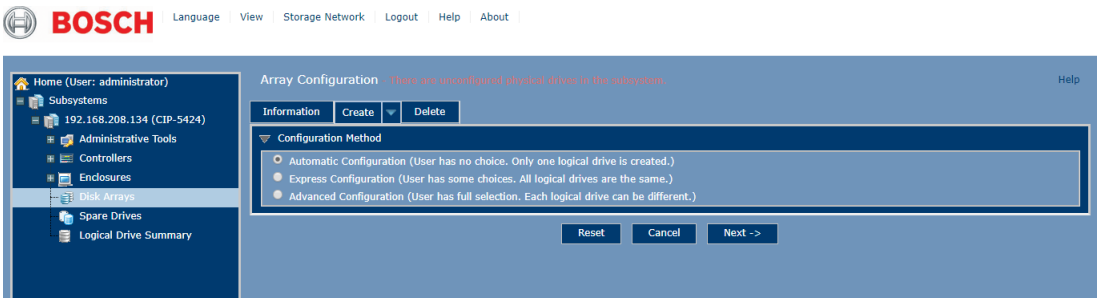
The Management GUI user interface displays in the chosen language.



4.7.3 Create logical drives

On a newly activated system, there are no disk arrays or logical drives.

To create a logical drive:



1. Log into the Management GUI. If there are no arrays configured, you will be automatically directed to the **Disk Array Configuration** menu.
2. The Disk Array Configuration menu offers three options for configuration. Select one of the options:
   - **Automatic Configuration** - Create a new disk array as defaulted set of parameters. Create one logical drive automatically, and create a hot spare drive for all RAID levels except RAID 0, if at least four un-configured physical drives are available.
   - **Express Configuration** - You select the parameters for a new disk array by specifying the characteristics you want. You can create multiple logical drives at the same time, even they are identical. You can select to create a hot spare drive for all RAID levels except RAID 0, if at least four un-configured physical drives are available.
   - **Advanced Configuration** - You directly specify all parameters for a new disk array. Create one logical drive automatically. You can create additional logical drives at a later time if additional configurable capacity is available. This option does not create a hot spare drive.
3. Click the **Next** button.

Automatic Configuration

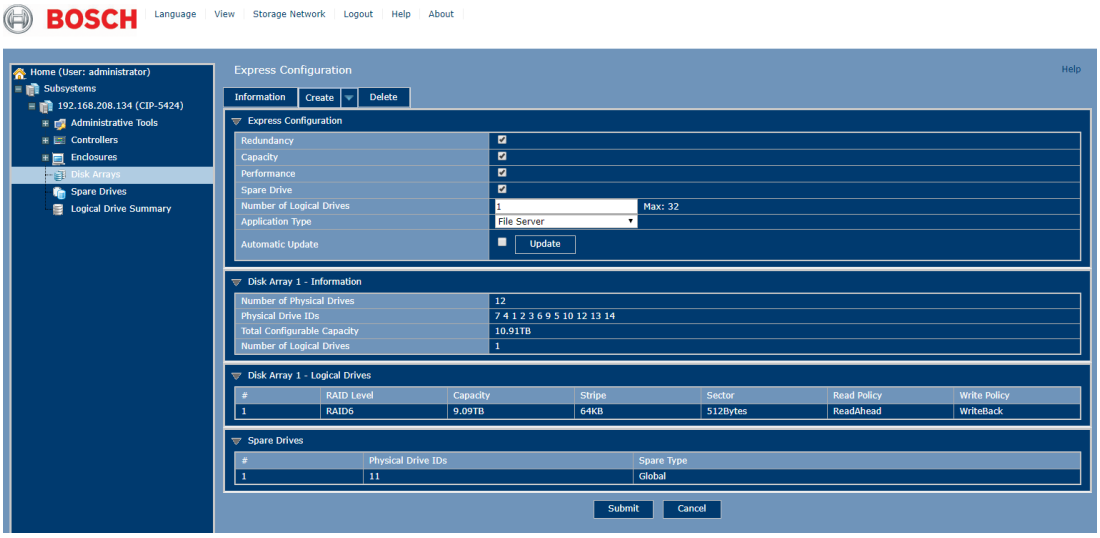
When you select the Automatic option, the following parameters appear on the screen:

- **Disk Arrays** - The number of physical drives in the disk array, their ID numbers, configurable capacity, and the number of logical drives to be created.
- **Logical Drives** - The ID number of the logical drive(s), their RAID level, capacity, and stripe size.
- **Spare Drives** - The physical drive slot number of the dedicated hot spare drive assigned to this disk array. A hot spare drive is created for all RAID levels except RAID 0, when five or more un-configured physical drives are available.

If you accept these parameters, click the **Submit** button.
The new disk array appears in the **Disk Array List** on the **Information** tab.
If you do not accept these parameters, use the **Express Configuration** or **Advanced Configuration** to create your logical drive.

Express Configuration

When you select the **Express Configuration** option, a set of characteristics and options appears on the screen.



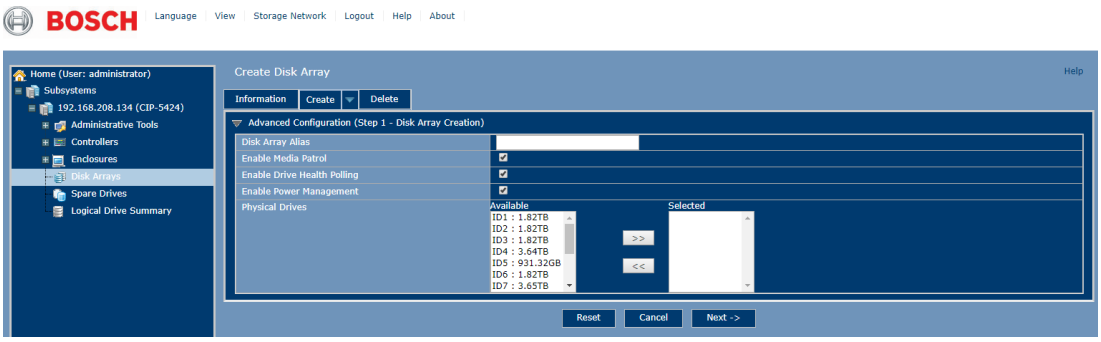
1. Check the boxes to select any one or a combination of:
   - Redundancy - The array remains available if a physical drive fails
   - Capacity - The largest possible amount of data capacity
   - Performance - The highest possible read/write speed
   - Spare Drive - A hot spare drive is created when you select Redundancy, Spare Drive, and five or more un-configured physical drives are available.
2. In the **Number of Logical Drives** field, enter the number of logical drives you want to create from this disk array.
   - The maximum possible number of logical drives appears on the right of this field.
3. From the **Application Type** menu, select an application that is best for you to use this disk array:
   - File Server
   - Video Stream
   - Transaction Data
   - Transaction Log
   - Other
4. Click the **Update** button.
5. Or check the Automatic Update box. The updating runs automatically. The following parameters display:
   - **Disk Arrays** - The number of physical drives in the disk array, their slot numbers, configurable capacity, and the number of logical drives to be created.
   - **Logical Drives** - The slot number of the logical drive(s), their RAID level, capacity, and stripe size.
   - **Spare Drives** - The physical drive slot number of the dedicated hot spare drive assigned to this disk array (all RAID levels except RAID 0).
6. If you accept these parameters, proceed to the next step.
   - If you do not accept these parameters, review and modify your selections in the previous steps.
7. Click the **Submit** button.

The new disk array appears in the **Disk Array List** on the **Information** tab.

Advanced Configuration

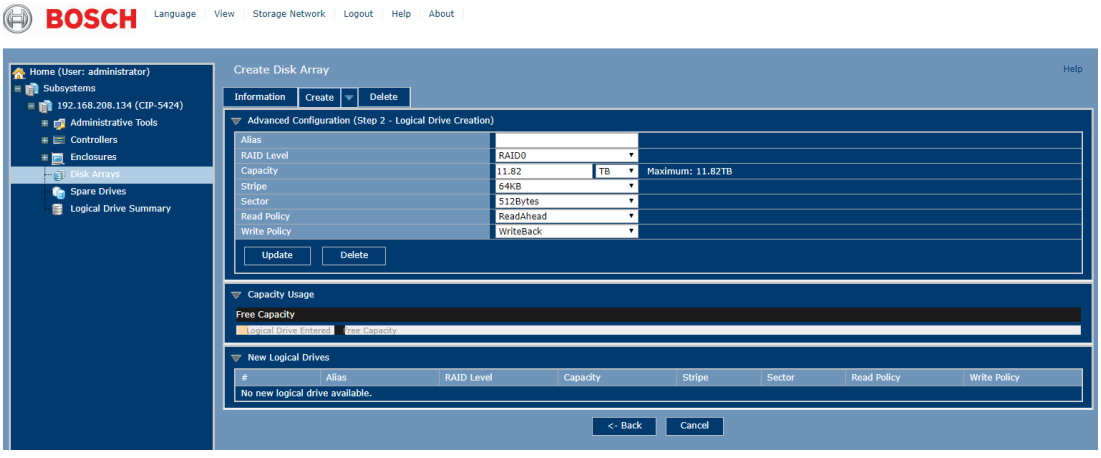
When you select the **Advanced Configuration** option, the advanced configuration screen displays.

Step 1 - Disk Array Creation



1. (Optional) Disk Array Alias.
   - Enter a name for the disk array in the field:
   - Maximum of 32 characters; letters, numbers, space, and underline.
2. Enable Media Patrol.
   - Uncheck the box if you want to disable Media Patrol.
3. Enable Drive Health Polling.
4. Enable Power Management
   - Bosch recommends leaving these features enabled.
5. Physical Drives
   - Highlight physical drives you need from the Available list and press the >> button to move them to the Selected list.
   - You can also double-click them to move them.
6. Click the **Next** button.

Step 2 - Logical Drive Creation



1. (Optional) Alias.
   - Enter an alias for the logical drive in the field provided. Maximum of 32 characters; letters, numbers, space, and underline.
2. RAID Level.
   - Select a RAID level for the logical drive from the dropdown list.
   - The RAID levels selection depends on the number of physical drives you selected.
   - RAID 30, 50 and 60 only - Specify the number of axles for your array.
3. Capacity.
   - Specify a capacity and the unit of measure (B, KB, MB, GB, TB).

- This value is the data capacity of the first logical drive in your new disk array. If you specify less than maximum capacity, the remaining capacity is available for additional logical drives which you can create now or later.

4. For the following items, accept the defaulted values or select a new value from the dropdown list:
   - Stripe size. 64 KB is defaulted. 64 KB, 128 KB, 256 KB, 512 KB, and 1 MB are available.
   - Sector size. 512 B is defaulted. 512 B, 1 KB, 2 KB, and 4 KB are available.
   - Read (cache) Policy. Read Ahead is defaulted. Read Cache, Read Ahead, and No Cache are available.
   - Write (cache) Policy. WriteBack is defaulted. WriteBack and WriteThrough (Thru) are available.
5. Click the **Update** button. A new logical drive is displayed under New Logical Drives. If there is free capacity remaining, you can specify another logical drive now or later.
6. Click the **Next** button.

Step 3 - Logical Drive Summary

The Summary lists the disk array and logical drive information you specified.

To proceed with disk array and logical drive creation, click the **Submit** button.

4.7.4 Log out

There are two ways to log out from CIP Management GUI:

- Close your browser window
- Click **Logout** on the Management GUI header

Clicking **Logout** brings you back to the Login Screen.

After logging out, you must enter your user name and password in order to log in again.

4.8 System shutdown

To shutdown the system, perform the normal shutdown procedure according to the Windows operating system.

5 Technical support

For technical support, please provides the following information:

- Product model and serial number
- BIOS, firmware and driver version numbers
- A description of the problem or situation
- System configuration information, including: motherboard and CPU type, hard drive models, SAS/SATA/ATA/ATAPI drives & devices, and other controllers.

After sales support

For more information, visit https://www.boschsecurity.com/xc/en/support/.

6 Disposal

Electrical and electronic waste

This product and/or battery must be discarded separately from household waste. Discard this product according to local laws and regulations, to allow its reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

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