

IBM Security QRadar Incident Forensics
Version 7.3.0

*IBM Security QRadar Packet Capture
Setup for the IBM x3650 M4 System*



Note

Before you use this information and the product that it supports, read the information in “Notices” on page 19.

Product information

This document applies to IBM QRadar Security Intelligence Platform V7.3.0 and subsequent releases unless superseded by an updated version of this document.

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Introduction to installing QRadar Packet Capture

This documentation provides you with information that you need to install and configure IBM® Security QRadar® Packet Capture.

Intended audience

System administrators who are responsible for installing QRadar Packet Capture must be familiar with network security concepts and device configurations.

Technical documentation

To find IBM Security QRadar product documentation in the QRadar products library, see *Accessing IBM Security Documentation Technical Note* (www.ibm.com/support/docview.wss?rs=0&uid=swg21614644).

Contacting customer support

For information about contacting customer support, see the *Support and Download Technical Note* (<http://www.ibm.com/support/docview.wss?uid=swg21616144>).

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Chapter 1. QRadar Packet Capture on an IBM x3650 M4 System

For the setup, you must start the system from an external DVD or Preboot Execution Environment (PXE) server by using the .iso image files for the IBM Security QRadar Packet Capture Standalone and IBM Security QRadar Packet Capture Data Node. This process is for setting up an individual IBM x3650 M4 system as either a standalone, a master, or a Data Node in a cluster of 2 or 3 IBM x3650 M4 systems, or a single system packet capture solution. Each cluster must contain a master and 1 or 2 Data Nodes.

Table 1. System Requirements

Description	Value
System	IBM x3650 M4
CPU	E5-2680 v2
RAID Controller	M5210 RAID Controller
RAM	Minimum 64 GB per CPU
HDD	Twelve 4 TB near-line SAS front-mounted hard drives connected to the RAID Controller
NIC	2 Intel X520 NICs with 10 Gb/s SFP+ modules
Monitor	External monitor plugged into VGA port
Optical Cables	2 or 3 optical cables for testing packet capture

You must install two Intel X520 10 Gbit/s NICs in the exact slots shown in the diagrams. You can use a single X520 NIC that is for a stand-alone setup or an individual Data Node. You must install the single NIC where Interface 0 is marked on the diagram.

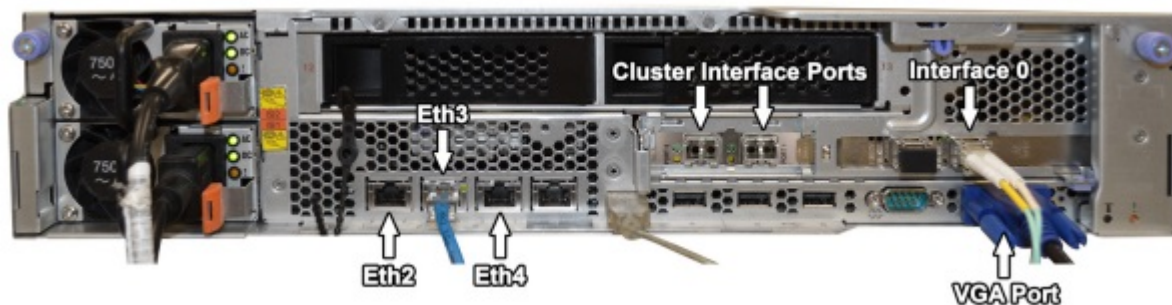


Figure 1. Cluster Master or Stand-Alone System

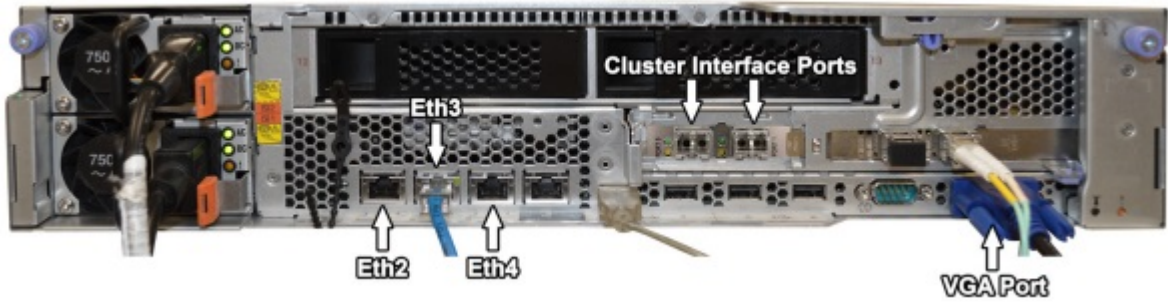


Figure 2. Cluster Data Node

Chapter 2. Configuring the system BIOS on an IBM x3650 M4 System

Use the BIOS to configure your system settings. The settings that are described are based on the firmware build ID: Y0E102DUS, 12/19/2013, Version 1.00.

Procedure

1. To access the BIOS system setup, press the F1 key while the system is powering on.
2. From the Main menu screen, select **System BIOS**.
3. Load the default settings by selecting **Default**.
4. Configure your system BIOS settings by using the following values:

Table 2. System Settings - Operating Modes

Setting	Value
Choose Operating Mode	Custom Mode
Turbo Mode	Disable
Platform Controlled Type	Maximum Performance
Memory Speed	Maximum Performance

Table 3. System Settings - Processors

Setting	Value
Hyper threading	Enable
QPI Link Frequency	Maximum Performance
Processor Performance States	Enable

Table 4. System Settings - Memory

Setting	Value
Memory Speed	Maximum Performance

5. Select **Save Settings** from the BIOS menu.

Chapter 3. Configuring a M5210 RAID Controller virtual drive for the x3650 M4 system

Create a 128 GB operating system that has a RAID1 configuration on the first two disk drives. Then create an extraction RAID1 virtual partition from the remaining space of the same two drives that are used to configure the operating system virtual drive. Finally create a RAID5 capture partition by using the remaining 10 disk drives. Use these settings to create the RAID arrays. Double-check your settings as you progress because some settings change dynamically. An incorrect RAID configuration can cause performance or system failures later.

Procedure

1. Create an operating system virtual drive.
 - a. To access the BIOS system setup, press the F1 key while the system is powering on.
 - b. From the System Settings menu, select **Storage**.
 - c. Select **LSI MegaRAID ConfigurationUtility**.
 - d. From the Main menu, select **Configuration Management > Create Virtual Drive > Advanced**, and use the following table to configure the virtual drive parameters:

Table 5. Configuration Management - Create Virtual Drive

Setting	Value
Select RAID Level	RAID1
Select Drive From	Unconfigured Capacity

- e. Select the **Select Drives** menu, and use the following table to configure the drives menu parameters:

Table 6. Select Drives Menu

Setting	Value
Select Media Type	HDD
Select Interface Type	SAS
Logical Sector	512 B

- f. Select **Unconfigured Drives > RAID 1**, select the first two drives identified as **7:01:00** and **7:01:01**, and then select **Apply Changes**.
 - g. Select **Configure Operating System Virtual Drive** and use the following table to configure the virtual drive parameters:

Table 7. Configure Operating System Virtual Drive

Setting	Value
Select RAID Level	RAID1

Table 7. Configure Operating System Virtual Drive (continued)

Setting	Value
Secure Virtual Drive	Leave unchecked
Protect Virtual Drive	Leave unchecked
Select Drive From	Unconfigured Capacity
Virtual Drive Name	Default
Virtual Drive Size	128
Virtual Drive Size Unit	GB
Strip Element Size	256 KB
Read Policy	Read Ahead
Write Policy	Force Write Back
I/O Policy	Direct
Access Policy	Read/Write
Drive Cache	Enable
Disable Background Initialization	No
Default Initialization	Fast

- h. Select **Save Configuration** to create the virtual drive.
2. Create an extraction virtual drive.
 - a. From the System Setup Main menu, select **Configuration Management > Create Virtual Drive**, and use the following table to configure the virtual drive parameters:

Table 8. Configuration Management - Create Virtual Drive

Setting	Value
Select RAID Level	RAID1
Select Drive From	Free Capacity
Select/Check [x]	Drive Group 0: RAID1
Verify - Free Space	3597 GB
Verify (RAID1)	7:01:00 7:01:01

- b. Select **Apply Changes**

- c. Select the **Create Virtual Drive > Advanced** menu option, and use the following tables to configure the virtual drive parameters:

Table 9. Create Virtual Drive - Advanced

Setting	Value
Select RAID Level	RAID1
Secure Virtual Drive	Leave unchecked
Protect Virtual Drive	Leave unchecked
Select Drives From	Free Capacity

Table 10. Create Virtual Drive - Advanced - Select Drive Groups

Setting	Value
Virtual Drive Size	3597
Virtual Drive Size Unit	GB
Strip Element Size	256 KB
Read Policy	Read Ahead
Write Policy	Force Write Back
I/O Policy	Direct
Access Policy	Read/Write
Drive Cache	Enable
Disable Background Initialization	No
Default Initialization	Fast

- d. Select **Save Configuration** to create the extraction virtual drive.
3. Create a capture virtual drive.
- a. From the System Setup Main menu, select **Configuration Management > Create Capture Virtual Drive**, and use the following table to configure the virtual drive parameters:

Table 11. Configuration Management - Create Capture Virtual Drive

Setting	Value
Select RAID Level	RAID5
Select Drives From	Unconfigured Capacity
Select Media Type	HDD

Table 11. Configuration Management - Create Capture Virtual Drive (continued)

Setting	Value
Select Interface Type	SAS
Logical Sector	512 B

- b. Select **Unconfigured Physical Drives**, and then select **Check All** to each of the 11 drives.
- c. Select **Apply Changes**.
- d. Select **Create Virtual Drive > Advanced**, and use the following table to configure the virtual drive parameters:

Table 12. Create Virtual Drive - Advanced

Setting	Value
Select RAID Level	RAID5
Secure Virtual Drive	Leave unchecked
Protect Virtual Drive	Leave unchecked
Select Drives From	Unconfigured Capacity
Virtual Drive Name	Default
Virtual Drive Size	33527
Virtual Drive Size Unit	GB
Strip Size	1 MB
Read Policy	Read Ahead
Write Policy	Force Write Back
I/O Policy	Direct
Access Policy	Read/Write
Drive Cache	Enable
Disable Background Initialization	No
Default Initialization	Fast

- e. Select **Save Configuration**.
- f. Select **Confirm**, and select **Yes** to confirm that you want to create the virtual drive and permanently delete the data.
- g. Press the Esc key to go back to the Integrated RAID Controller Main menu.
- h. Select **Virtual Drive Management**.

- i. Verify that all the virtual drives were created, and use the following table to configure the virtual drive management parameters:

Table 13. Virtual Drive Management

Virtual Drive	RAID Level	Virtual Drive Size	Status
Virtual Drive 0	RAID1	128 GB	Optimal
Virtual Drive 1	RAID1	3597 GB	Optimal
Virtual Drive 2	RAID5	33527 GB	Optimal

- j. Press the Esc key several times to return to the System Configuration and Boot BIOS/UEFI menu.
- k. Select **Save Settings**.
- l. Select **Exit Setup** and then select y to exit.

Chapter 4. Deploying a QRadar Packet Capture image on an IBM x3650 M4 System

Each cluster setup consists of one IBM Security QRadar Packet Capture master node, and 1 or 2 IBM Security QRadar Packet Capture Data Nodes. Make sure that you start from the appropriate image source, depending on the final system configuration that you want. A stand-alone system uses the same image as a cluster system.

Procedure

1. Restart the system after RAID configuration is complete.
2. Plug in an external DVD drive that contains the image DVD inserted, or plug in a network cable provided from a PXE server. Make sure you do not have any additional USB devices or network and packet capture cables plugged into the system during this setup.
3. For Preboot Execution Environment (PXE), plug into Eth2/PXE0 as physically shown in the following diagram, and restart the system by using the latest image provided.

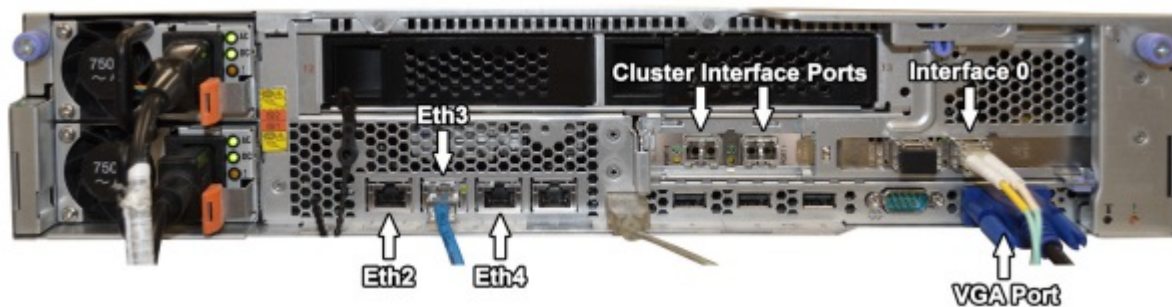


Figure 3. Cluster Master or Stand-Alone System

4. If you are using a DVD for the installation, when the image disk starts up, select the top menu option, which is the default.
For PXE installations, this step might be automated.
5. For DVD installations, select **y** to the **Are you sure you want to continue?** prompt.
6. For DVD installations, select **y** again to the **Let me ask you again. Are you sure you want to continue?** prompt.
7. Select **Power Off** after imaging completes.
8. Disconnect the DVD drive from the system and then turn on the system.
9. Log in as the root user by using the default password **P@ck3t08..**
10. Change to the **/root** directory and then run the following command:
`./Reset_Interfaces.sh`
11. After the system restarts, log in as root user.
12. Type the following command:
`df -h`
 - a. On the line that begins with **/dev/sdc**, check the size of the **/storage0** partition is 33 TB.

- b. On the line that begins with `/dev/sdb1`, check the size of the `/extraction` partition is 3.5 TB.
- c. If these `/dev/sdc` and `/dev/sdb1` configurations do not match, retrace your steps. Make sure that the OS, Extraction, and Capture RAID arrays were created correctly, and in the indicated order before you deployed the image. Verify that no steps up to this point were missed.
- d. The sizes of `sdc` and `sdb1` are based on using all 4 TB hard disks in the system. If different drives are used, the relative sizes of the `sdc` and `sdb` increase or decrease with the size of the hard disks. The operating system partition `sda` is always fixed as it was set up in the RAID configuration and does not change.

Chapter 5. Installing QRadar Packet Capture software on your own appliance

To ensure a successful installation of IBM Security QRadar Packet Capture on your own appliance, you must install the Red Hat Enterprise Linux operating system and the QRadar Packet Capture software. You must also ensure that your appliance meets the system requirements.

Important: The system on which the QRadar Packet Capture software is installed must be dedicated to QRadar Packet Capture. Do not install RPM packages that are not approved by IBM. Unapproved RPM installations can cause dependency errors when you upgrade and can also cause performance issues in your deployment. Do not use YUM to update your operating system or install unapproved software on QRadar Packet Capture systems.

Restriction: Software installations on a virtual machine are not supported.

Before you begin

Ensure that your appliance meets the following system requirements:

Table 14. System requirements for a QRadar Packet Capture software installation

Specification	Description
Processors	Intel E5 series processors V2 or V3. V4 versions require 6 cores or more.
Processor BIOS settings	Must support the Intel AES and AVX standards introduced by Intel in 2011. Configure your BIOS system settings to ensure that Hyper threading is enabled.
Memory	24 GB
Hardware RAID controller and capture and extraction store	RAID configuration (using a combination of RAID 0, 1 or 5) across a minimum 4 hard disk drives, where each hard disk drive is at least 7200 RPM performance and a minimum 1 TB per drive
Operating system drive	500 GB minimum 7200 RPM enterprise class hard disk drive SATA or SAS
Operating system	Red Hat Enterprise Linux V6.7, V6.8 or V6.9 Note: 1G SFS installer should be installed on the system where the 1G PCAP is installed as a dedicated PCAP appliance. It should not be used for any purpose other than packet capture.
Minimum total disk space	4 TB

Table 14. System requirements for a QRadar Packet Capture software installation (continued)

Specification	Description
Capture NIC (Single capture 1G or 10G interface supporting to 1Gbps+)	<p>Intel manufactured PCI Express network cards:</p> <ul style="list-style-type: none"> • Intel E1G44ET2BLK Ethernet PCI Express adaptor http://ark.intel.com/products/49187/Intel-Gigabit-ET2-Quad-Port-Server-Adapter • Intel X520-SR2 Dual Ports 10 Gigabit Ethernet Converged Network Adapter, PCI Express 2.0 x8, Low Profile http://ark.intel.com/products/39774/Intel-Ethernet-Converged-Network-Adapter-X520-SR2 <p>OR Intel Ethernet controllers (any motherboard or network adaptor using this controller should work:</p> <ul style="list-style-type: none"> • Intel 82576 Gigabit Ethernet Controller http://ark.intel.com/products/series/32261/Intel-82576-Gigabit-Ethernet-Controller <p>OR Dell based computer network cards:</p> <ul style="list-style-type: none"> • Intel X520 DP 10Gb DA/SFP+ Server Adapter (DELL SKU#540-BBCT) http://accessories.ap.dell.com/sna/productdetail.aspx?c=sg&l=en&s=dhs&cs=sgdhs1&sku=540-11353 • Intel Ethernet i350 QP 1Gb Network Daughter Card (DELL SKU#540-BBCB) http://accessories.dell.com/sna/productdetail.aspx?c=us&l=en&s=gen&sku=430-4437 • Intel Ethernet i350 QP 1Gb Network PCI express Card (DELL SKU#540-11357) http://accessories.ap.dell.com/sna/productdetail.aspx?c=au&l=en&s=bsd&cs=aubsd1&sku=540-11357
PCAP UI network interface	Any 1G or (optionally 10G) network interface, for example, eth0.

Before you install QRadar Packet Capture software on your own appliance, we suggest that you set up and configure three separate virtual drives. These virtual drives are for the OS, extraction and storage. The storage drive should be the largest of the three, and a minimum requirement for this is 4000 GB.

See the following example:

Table 15. Example of RAID configuration for a QRadar Packet Capture software installation

Virtual Drive	RAID Level	Size
0	RAID 1	128 GB
1	RAID 1	3587 GB
2	RAID 5	33527 GB

Procedure

1. Insert the Red Hat Enterprise Linux operating system disk into your appliance and restart your appliance.
2. Follow the instructions in the installation wizard to complete the installation:
 - a. Select the **Basic Storage Devices** option.
 - b. When you configure the host name, the **Hostname** property can include letters, numbers, and hyphens.
 - c. On the **IPv4 Settings** tab, from the **Method** list, select **Manual**.
 - d. On the Which type of installation would you like page, select **Use All Space** and then select the smallest partition (boot partition) for the operating system to be installed on.
 - e. Select only **Base System** option to install.
3. When the installation is complete, click **Reboot**.
4. Copy the QRadar Packet Capture SFS file to your appliance.
5. Mount the QRadar Packet Capture SFS file.
 - a. Create the /tmp/qpc_install directory by typing the following command:

```
mkdir -p /tmp/qpc_install
```
 - b. Mount the QRadar Packet Capture SFS file by typing the following command:

```
mount -o loop -t squashfs <QRadar_Packet_Capture_file.sfs> /tmp/qpc_install
```
 - c. Go to the /tmp/qpc_install directory.

```
cd /tmp/qpc_install
```
6. To run the installation script, type the following command:

```
sh installer.sh
```
7. At the Capture port number prompt, type the appropriate response. The default capture port number is 0.
8. Confirm your response by typing uppercase letters: Y or N. This is case sensitive, and the patch might not progress if a lowercase letter is used.
9. Type the RAID device name (not the OS drive) when prompted. For example, /dev/sdc.
10. Confirm the entry displayed is correct by typing uppercase letters: Y or N. This is case sensitive, and the patch might not progress if a lowercase letter is used.

Chapter 6. Customizing the QRadar Packet Capture setup on an IBM x3650 M4 System

After you set up IBM Security QRadar Packet Capture, you can configure the date and time, change the IP address of the NIC cards, and change the default passwords.

Procedure

1. Set the UTC time.
 - a. At the shell prompt, change the date and time to current UTC time by using the date command at the prompt.

The format for the date command is month (02), day (25), hour (15), minutes (07), and year (2016). In this example, the date is in the format 022515072016.
 - b. Set the BIOS clock by using the hwclock command:

```
/sbin/hwclock --systohc
```
2. Change the IP addresses of the NIC.
 - a. Check which network interfaces are available by using the following command:

```
ifconfig | grep eth
```
 - b. Note the hardware address /etc/sysconfig/network-scripts/ifcfg-eth*.
 - c. Edit the /etc/sysconfig/network-scripts/ifcfg-eth* files to configure the standard Ethernet interfaces that are used to communicate remotely with the system.

eth* represents ETH4, ETH5, ETH6, and so on. Ensure that you do not change the preconfigured 10G static interfaces (1.1.1.X or 2.2.2.X), because they are used for master and data node connectivity.

To set a static IP address, use the following table and replace the values with information that is specific to your deployment.

Table 16. IP address configuration

Setting	Value
DEVICE	ETH2
HWADDR	34:40:B5:A3:9F:F7
BOOTPROTO	Static
GATEWAY	23.30.187.174
IPADDR	23.30.187.169
NETMASK	255.255.255.240
NM_CONTROLLED	Yes
ONBOOT	Yes

If DHCP is used, no IP address configuration is required.

- d. Test the system packet capture by using QRadar Packet Capture.

Important: To connect the master and data node systems together and test the packet capture, see the *QRadar Packet Capture Quick Start Guide*.

3. Use SSH and port 4477 to log in as the root user.
The default password for the root user is P@ck3t08..
4. To change the passwords for the root user account, use the **passwd** command.
5. To change the Packet Capture Web User Interface Account passwords as required upon first login, use the following steps:
 - a. Log in to the UI `https://pcap-IP_Address:41390`.
 - b. Click on the **Admin** tab.
 - c. Under **User Management**, edit the current user account password as required, and click **Save**.

Note: Passwords need to be at least 8 characters long. They must have one or more upper case and lower case letters, and one or more special characters (\$,%,*).

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