BreakingPoint Firmware Release Notes

Release 8.20 GA, Aug. 2017

Release Notes Version 1.0

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Overview

Document Purpose

These release notes provide information regarding the BreakingPoint 8.20 GA (8.20.0-312750) release. This includes information about new features, resolved SRs, known defects and workarounds (if available).

Background

Powered by Application and Threat Intelligence, BreakingPoint enables companies to maintain resilient IT infrastructures against escalating threats. Only BreakingPoint security and performance testing products stress and optimize end-to-end IT infrastructures by creating real user actions with a blend of application and attack traffic including malware, mobile malware, DDoS, and more.

Technical Support

To contact the BreakingPoint Support team, e-mail them at support@ixiacom.com or call them at 1-818 595 2599.

Documentation

The listed BreakingPoint documentation can be obtained at: https://support.ixiacom.com/user-guide > **BreakingPoint**

- *Ixia BreakingPoint User Guide*
- *Ixia BreakingPoint Storm Installation Guide*
- *Ixia BreakingPoint FireStorm Installation Guide*
- *Ixia BreakingPoint FireStorm ONE Installation Guide*
- *Ixia BreakingPoint 20 Installation Guide*
- *Ixia BreakingPoint Virtual Edition (VE) Installation Guide*

Documentation for, *PerfectStorm - XGS12 Chassis Platform Assembly Guide*, can be obtained at:

http://downloads.ixiacom.com/library/user_guides/IxOS/8.00/EA_8.00_Rev_A/XGS12ChassisPlatformAssemblyGuide/XGS12ChassisPlatformAssemblyGuide.pdf

New Features

BreakingPoint 8.20 GA (8.20.0-312750) release is a compatible release with other IXIA products along with few defects fixes. Please refer the resolved ticket section for the resolved defects.

Software Compatibility

BreakingPoint 8.20 GA (8.20.0-312750) Firmware Release is a cross-platform release. Please review the following table to identify the software required for your hardware platform.

Platform	BreakingPoint Firmware	IxOS Software	Flix OS Software
Firestorm chassis (Storm, Firestorm, Firestorm20)	BreakingPoint 8.20.0	Not applicable	
Firestorm ONE appliance	BreakingPoint 8.20.0		
XGS12-HS chassis (PerfectStorm Load Modules)	BreakingPoint 8.20.0	IxOS 8.20 GA	FlixOS for Native IxOS: 2017.1.75.xx (see the Product Compatibility Matrix for the correct FlixOS version) FlixOS for Windows IxOS: 2017.1.0.1
PerfectStorm ONE Fusion appliances	BreakingPoint 8.20.0	IxOS 8.20 GA	FlixOS for Native IxOS: 2017.1.75.xx (see the Product Compatibility Matrix for the correct FlixOS version) Note: Starting with 8.13, PerfectStorm ONE does not support Windows-based software. To support 8.13 and higher releases, PerfectStorm ONE appliances need to be converted to Native IxOS.
BreakingPoint Virtual	BreakingPoint 8.20.0	Not Applicable	

Hardware Compatibility

The BreakingPoint 8.20 GA Release is supported on all hardware platforms and BreakingPoint VE.

3-slot Firestorm Chassis and Firestorm ONE appliance

Part Number	Description
981-0001	BreakingPoint Firestorm, 3-slot chassis
981-0058	BreakingPoint Firestorm ONE, 4-port 10/1 GigE SFP+ appliance
982-0001	BreakingPoint Firestorm 4-port 10/1GigE SFP+ blade
982-0021	BreakingPoint System Controller
982-0037	BreakingPoint Storm, 1 GigE 4-port blade
982-0026	BreakingPoint Storm, 1 GigE 8-port blade
982-0027	BreakingPoint Storm, 10 GigE 4-port blade
982-0040	BreakingPoint Firestorm 20, 20-port 10/1GigE SFP+ blade

12-slot XGS12 Chassis and CloudStorm Fusion Load Module

Part Number	Description
940-0006	XGS12-HS 12-slot, Chassis Bundle
944-1231-02	CloudStorm Fusion, 2-port 100GE Load Module (CS100GE2Q28NG)
944-1201	PerfectStorm Fusion, 2-port 40/10GE QSFP+ Load Module (PS40GE2NG)
944-1200	PerfectStorm Fusion, 8-port 10/1 GE SFP+ Load Module (PS10GE8NG)
944-1209	PerfectStorm Fusion, 4-port 10/1 GE SFP+ Load Module (PS10GE4NG)
944-1210	PerfectStorm Fusion, 2-port 10/1 GE SFP+ Load Module (PS10GE2NG)
944-1202	PerfectStorm Fusion, 1-port 100GE CXP Load Module (PS100GE1NG)

PerfectStorm ONE Fusion Appliances

Part Number	Description
941-0028	PerfectStorm ONE Fusion, 40GE 2-port QSFP+ appliance (PS40GE2NG)
941-0027	PerfectStorm ONE Fusion, 8-port 10/1 GE SFP+ appliance (PS10GE8NG)
941-0031	PerfectStorm ONE Fusion, 4-port 10/1 GE SFP+ appliance (PS10GE4NG)
941-0032	PerfectStorm ONE Fusion, 2-port 10/1 GE SFP+ appliance (PS10GE2NG)
941-0033	PerfectStorm ONE Fusion, 8-port 1 GE SFP+ appliance (PS1GE8NG)
941-0034	PerfectStorm ONE Fusion, 4-port 1 GE SFP+ appliance (PS1GE4NG)

For PerfectStorm platform, please refer to the Product Compatibility Matrix available on Ixia's website. An Ixia website account is required before accessing.

Browser Compatibility

The table below lists the HTML browsers supported by BreakingPoint. Browser versions that are more current than the versions listed in the table may work, but have not been tested at this time. Beta versions of HTML browsers are not supported.

Browser	Recommendation for Windows	Recommendation for MAC
Google Chrome	56.0 (64-bit)	56.0 (64-bit)
Firefox	54.0	54.0
Microsoft Edge	20	N/A
Safari	Not supported	Not supported
Internet Explorer	Not supported	Not supported

Note: In BreakingPoint 3.5.1, and higher releases, logging in to the management UI will not be allowed from HTML browsers that have a maximum SSL version setting that is limited to only sslv3 (ssl3).

Note: Mac users with OS 10.8.2 can use Firefox or Google Chrome as their browser.

Note: BPS 8.20 GA users may need to enable the Flash Player in their browser because Flash Player has been has been disabled in some browsers (for example, in the latest versions of Google Chrome and Mozilla Firefox). You may need to

consult your browser documentation for the latest information on enabling Flash Player.

The following is an example of how to enable Flash Player on Google Chrome.

1. In the Chrome URL bar, enter `chrome://settings/content`. Click **Flash** and make sure that **Allow sites to run Flash** is enabled.
2. In the Chrome URL bar, enter `chrome://flags/#prefer-html-over-flash`. Select **Disabled** from the dropdown-list. Relaunch the browser (using the button displayed at the bottom of the window).

Upgrading to Release 8.20 GA (8.20.0-312750)

Before you upgrade to a new firmware release, please create a backup of your current system.

There are 2 backup scenarios:

- **Backup before Native IxOS conversion** - If you plan to convert a system to the Native IxOS, the proper way to backup data before conversion is documented in the conversion guide (which can be downloaded from the Ixia support web page (go to: https://support.ixiacom.com/ and then log in. Click **Software Downloads** > **IxOS** (IxServer, IxTCLServer, IxExplorer)).

  Note: After conversion to Native IxOS there may not be enough available disk space to restore a previously exported backup (especially for files larger than 1GB). If there is not enough space available, you can delete the pre-conversion BreakingPoint data by using the IxOS CLI command, **uninstall bps legacy** (which frees up 250GB of disk space). Be aware that if reverting back to a Windows-based architecture, BPS application (BPS VM) will not start after uninstalling BPS legacy.

- **BreakingPoint Backup for Non-Native IxOS** – Use the BPS Backup for Non-Native IxOS to a NFS Server procedure (described below) if you are **NOT** converting your system to the Native IxOS. This is the backup procedure that has been used prior to the 8.13 release.

BreakingPoint	8.20.0 (312750)
IxOS	8.20 GA
Flix OS	FlixOS for Native IxOS: 2017.1.75.xx (see the Product

	Compatibility Matrix for the correct FlixOS version) FlixOS for Windows IxOS: 2017.1.0.1
IxLoad	8.20 GA
IxNetwork	8.20 GA
Licensing	4.50 EA

General Notes

Specific instructions for installation on PerfectStorm and FireStorm systems are contained in the sections below.

Note: Be aware that you must upgrade your BreakingPoint system to the latest ATI package before initiating Security component testing.

BPS Backup for Non-Native IxOS to a NFS Server

Note: You should not backup your existing data using this method if you plan to convert your system to Native IxOS. The proper way to backup data before conversion is documented in the conversion guide which can be downloaded from Ixia support web page (go to: https://support.ixiacom.com/ and then log in. Click **Software Downloads** > **IxOS** (IxServer, IxTCLServer, IxExplorer)).

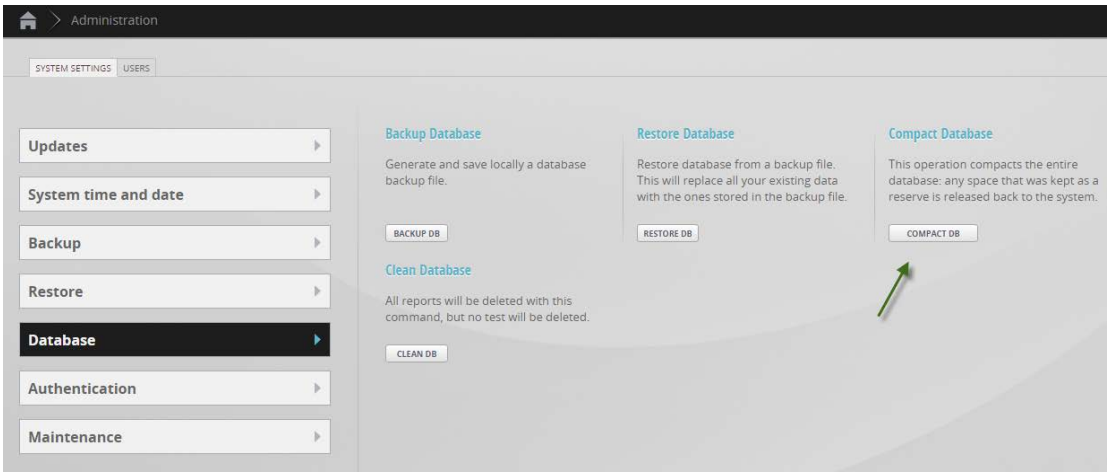
This example uses an Ubuntu Linux computer and the Ixia BreakingPoint system.

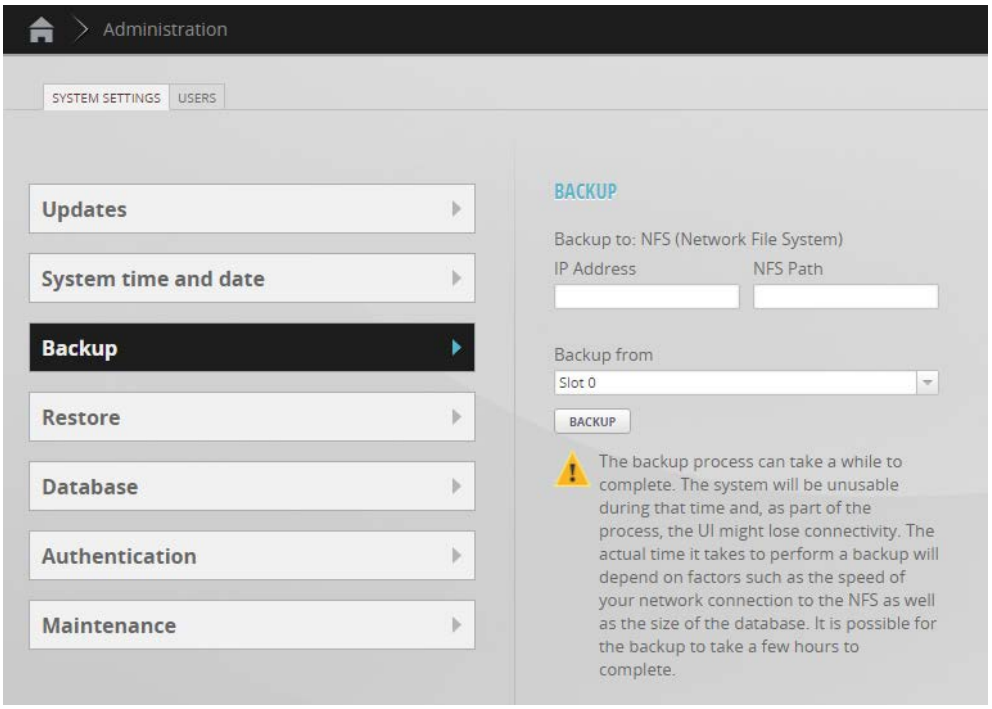
Starting from the Linux computer:

1. Download the required software
    a. sudo apt-get install nfs-kernel-server portmap
    b. sudo /etc/init.d/nfs-kernel-server start
2. Export the shared directory
    a. sudo mkdir /var/nfs/
    b. sudo chown nobody:nogroup /var/nfs
    c. sudo chmod 777 /var/nfs
3. Allow Directory Exporting
    a. sudo vi /etc/exports
4. Add the Following Line to /etc/exports
    a. /var/nfs 12.33.44.55(rw,sync,no_subtree_check,insecure)
5. Export the Shared Directory
    a. sudo exportfs -a

Setup NFS Backup on the Ixia BreakingPoint System

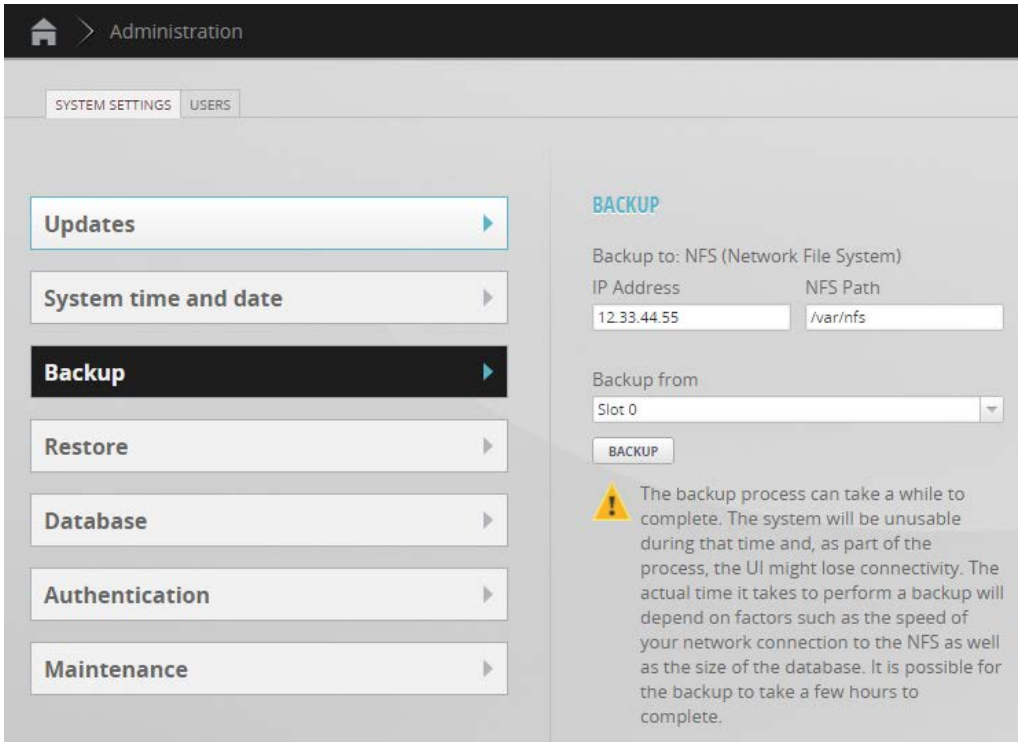
1. Log in to the Ixia BreakingPoint and navigate to **Database** within the Ixia Web Apps (Administration > System Settings).
2. Run the **Compact Database** option (this may take some time to complete).
3. Log in to the Ixia BreakingPoint and navigate to **Backup** within the Ixia Web Apps:





4. Enter the IP address of the NFS Server and the Location of the Shared Directory:

    a. (example) IP Address: 12.33.44.55
    b. (example) NFS Path: /var/nfs
    c. (example) Backup From: Slot 0



BreakingPoint Installation

Ixia strongly recommends that you create backups of your system before upgrading to the 8.20 GA Firmware release *and* after upgrading to the 8.20 GA Firmware release.

Note: After upgrading to 3.4.1 and above, Backup and Restore to USB is supported on Firestorm and Firestorm ONE.

The tables below describe the steps that are required to upgrade to 8.20 GA from earlier BreakingPoint Firmware releases.

- For Legacy (Storm, FireStorm)
- For PerfectStorm ONE (or to transition to Native IxOS on XGS2 or XGS-12)
- For XGS2 and XGS-12

For Legacy (Storm, FireStorm)

Current BreakingPoint Firmware	Upgrade Path to BreakingPoint 8.20 GA Firmware		
8.20.1	-> 8.20 GA		
8.20	-> 8.20 GA		
8.13	-> 8.20 GA		

8.10	-> 8.20 GA		
8.0.x	-> 8.10	-> 8.20 GA	
3.5.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.4.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.3.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.2 or earlier	Contact Ixia Technical Support		

Conversion to Native IxOS for PerfectStorm ONE, XGS2-HS and XGS12-HS

Note: Windows OS is no longer supported for PerfectStorm One. Systems must be converted to native IxOS for release 8.13 and higher.

Current BreakingPoint Firmware	Upgrade Path to BreakingPoint 8.20 GA Firmware		
8.20.1 Native IxOS	-> 8.20 GA Native IxOS		
8.20 Native IxOS	-> 8.20 GA Native IxOS		
8.13 Native IxOS	-> 8.20 GA Native IxOS		
8.10 Windows	-> 8.20 GA Native IxOS	-> 8.20 GA Native IxOS	
8.0.x Windows	-> 8.20 GA Native IxOS	-> 8.20 GA Native IxOS	
3.5.x Windows	-> 8.0.x Windows	-> 8.20 GA Native IxOS	
3.4.x Windows	-> 8.0.x Windows	-> 8.20 GA Native IxOS	
3.3.x Windows	-> 8.0.x Windows	-> 8.20 GA Native IxOS	
3.2 or earlier Windows	-> 3.3.x Windows	-> 8.0.x Windows	-> 8.20 GA Native IxOS

XGS2-HS and XGS12-HS (Windows based IxOS)

If staying on **Windows**:

Current BreakingPoint Firmware	Upgrade Path to BreakingPoint 8.20 GA Firmware		
8.20.1	-> 8.20 GA		
8.20	-> 8.20 GA		
8.13	-> 8.20 GA		
8.10	-> 8.20 GA		
8.0.x	-> 8.10	-> 8.20 GA	
3.5.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.4.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.3.x	-> 8.0.x	-> 8.10	-> 8.20 GA
3.2 or earlier	Contact Ixia Technical Support		

To transition to **Native IxOS,** see Conversion to Native IxOS for PerfectStorm ONE, XGS2-HS and XGS12-HS.

Note: During an update from 3.0, the user may encounter the following system error: "Nov 21 16:03:54 localhost [dbchecker] database connection not functional, restarting". This is a normal occurrence. Ignore the message and continue with the upgrade.

After upgrading the FireStorm system to version 8.20 GA, you must restart the system in order for all of the subsystems to initialize.

Upgrading multi-blade FireStorm systems to Release 8.20 GA, requires installation of the new firmware to all Firestorm blades. For example, if the Ixia BreakingPoint software needs to upgrade a Firestorm in slots 0, 1, and 2, all blades must be checked before upgrading. The FireStorm in slot 0 will upgrade at a relatively shorter time than the Firestorms in slots 1 and 2.

Installation on XGS2-HS, XGS12-HS Chassis and PerfectStorm ONE Fusion Appliances

There are two procedures available depending on your update scenario:

- For XGS2-HS, XGS12-HS XGS chassis that will remain on Windows IxOS
- For XGS2-HS, XGS12-HS chassis and PerfectStorm ONE appliances that will be converted to Native IxOS

Note: PerfectStorm ONE appliances starting with 8.13 release do not support IxOS on Windows and only Native IxOS version is offered for this platforms.

For XGS2-HS, XGS12-HS chassis that will remain on Windows IxOS:

To install BreakingPoint 8.20 GA, you must perform the following steps:

1. Install the compatible Flix-OS version (refer to the Software Compatibility table)
2. Upgrade the IxOS version to 8.20 GA.
3. Upgrade BreakingPoint software to firmware 8.20.
4. After the BreakingPoint software upgrade has completed, we recommend that you perform a backup.

For XGS2-HS, XGS12-HS chassis and PerfectStorm ONE appliances that will be converted to Native IxOS

Note: If your chassis will be converted to Native IxOS, please read the detailed information provided in the document that describes how to convert the chassis. This document can be downloaded from the Ixia support web page (go to: https://support.ixiacom.com/ and then log in. Click **Software Downloads** > **IxOS** (IxServer, IxTCLServer, IxExplorer)).

In summary, to install BreakingPoint 8.20 GA, you must perform the following steps (make sure to read and follow the conversion guide (see note below) for the complete, detailed instructions):

1. Convert the system to Native IxOS using FlixOS 2017.1.75.xx (see the Product Compatibility Matrix for the correct FlixOS version). After the chassis is converted to Native IxOS, the IxOS version will be IxOS 8.20.1300.x.

Upgrading IxOS 8.20 GA

Note: For systems that will be converted to Native IxOS, the FlixOS 2017.1.75.xx (see the Product Compatibility Matrix for the correct FlixOS version) will also contain the IxOS 8.20 GA. Please skip this section.

There are two paths for upgrading IxOS. Select the upgrade path that applies based on your current operating system.

- Upgrade IxOS Version on Native IxOS Platforms
- Upgrading IxOS 8.20 EA on Windows IxOS

Upgrade IxOS Version on Native IxOS Platforms

There are 2 methods for upgrading.

Online:

1. Access the IxOS CLI - `ssh admin@<chassisIP> -p 8022`, password: `admin`

You will be notified through the CLI when new builds of IxOS are available.

2. Run the `install ixos <version>` command to perform the install. The build will be installed automatically from Ixia IxOS online repository (which is predefined in the OS).

Offline:

1. Download the IxOS build from http://support.ixiacom.com/support-overview/product-support/downloads-updates/versions/21.
2. Use FTP to put the file on to your BPS system.

   ```
   ftp://<chassisIP>
   user: admin
   password: admin

   Put the upgrade file (Ixia_Hardware_Chassis<version>.tar.gz.gpg
   ) in the top directory
   ```

3. Access the IxOS CLI - `ssh admin@<chassisIP> -p 8022`, password: `admin`
4. Run the **`install ixos <version>`** command to perform the install. Install the version that was downloaded.
5. Reboot the chassis.

Upgrading IxOS 8.20 GA on Windows

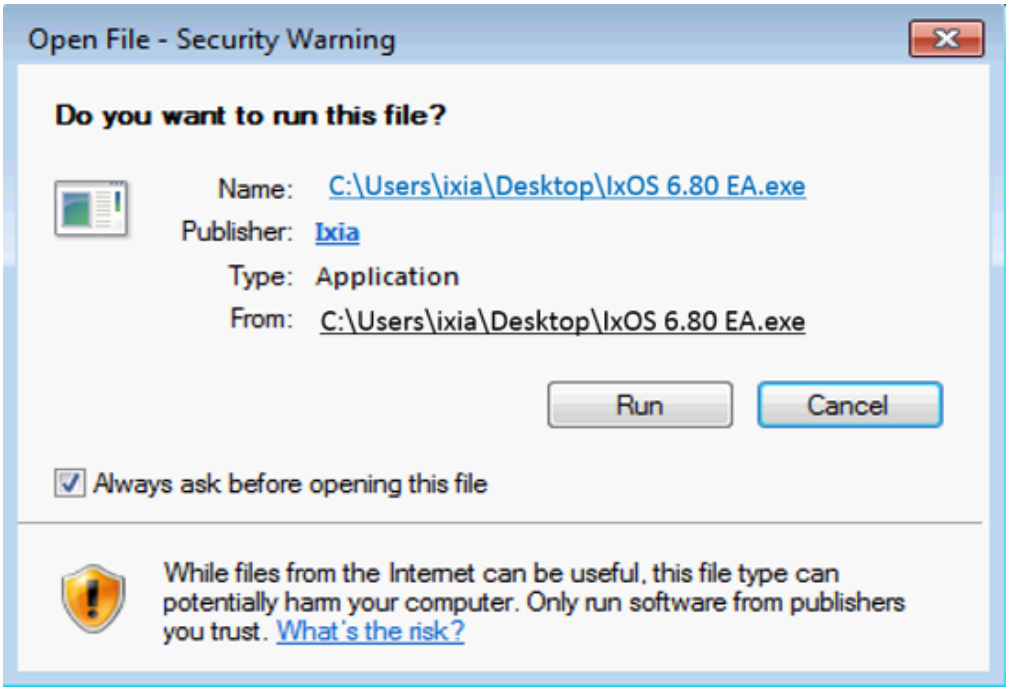
Software and Installation Instructions are located at the following location: http://support.ixiacom.com/support-overview/product-support/downloads-updates/versions/21

Note: The version numbers displayed in the images below may differ from the version numbers that are displayed when you upgrade IxOS 8.20 GA.

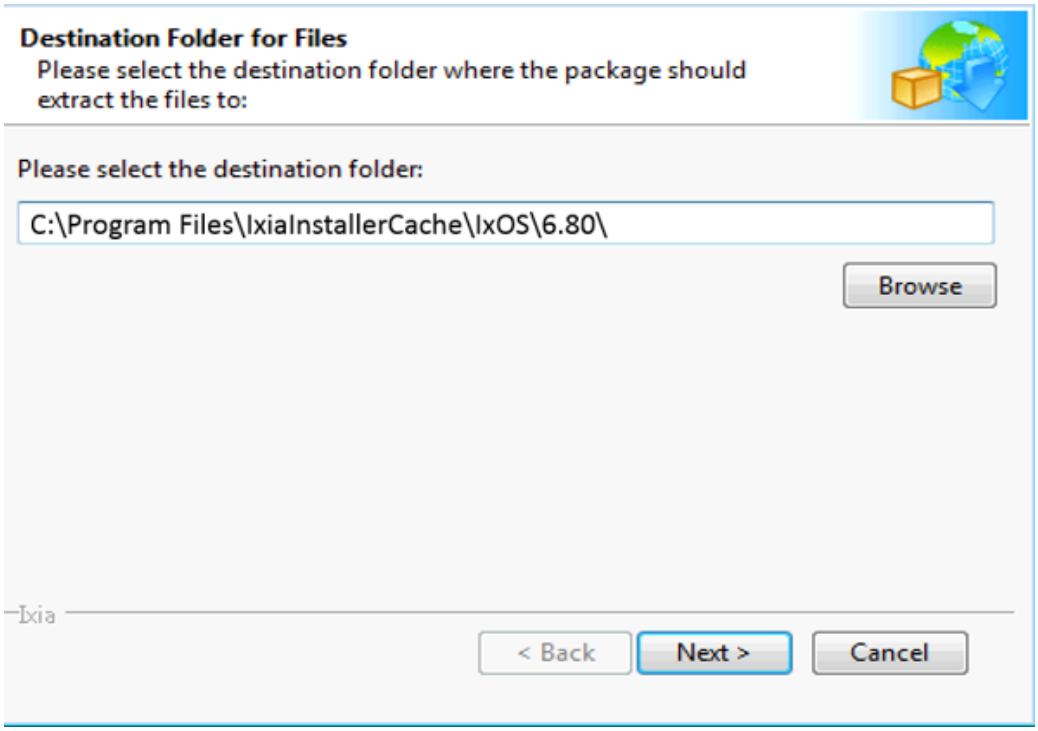
Note: BUG1354074: A Stop Error (Blue Screen) may occur while upgrading IxOS due to a Microsoft Windows issue. A Microsoft hotfix is available to resolve this issue, see Windows Update kb2675806.

Starting From the Windows VM:

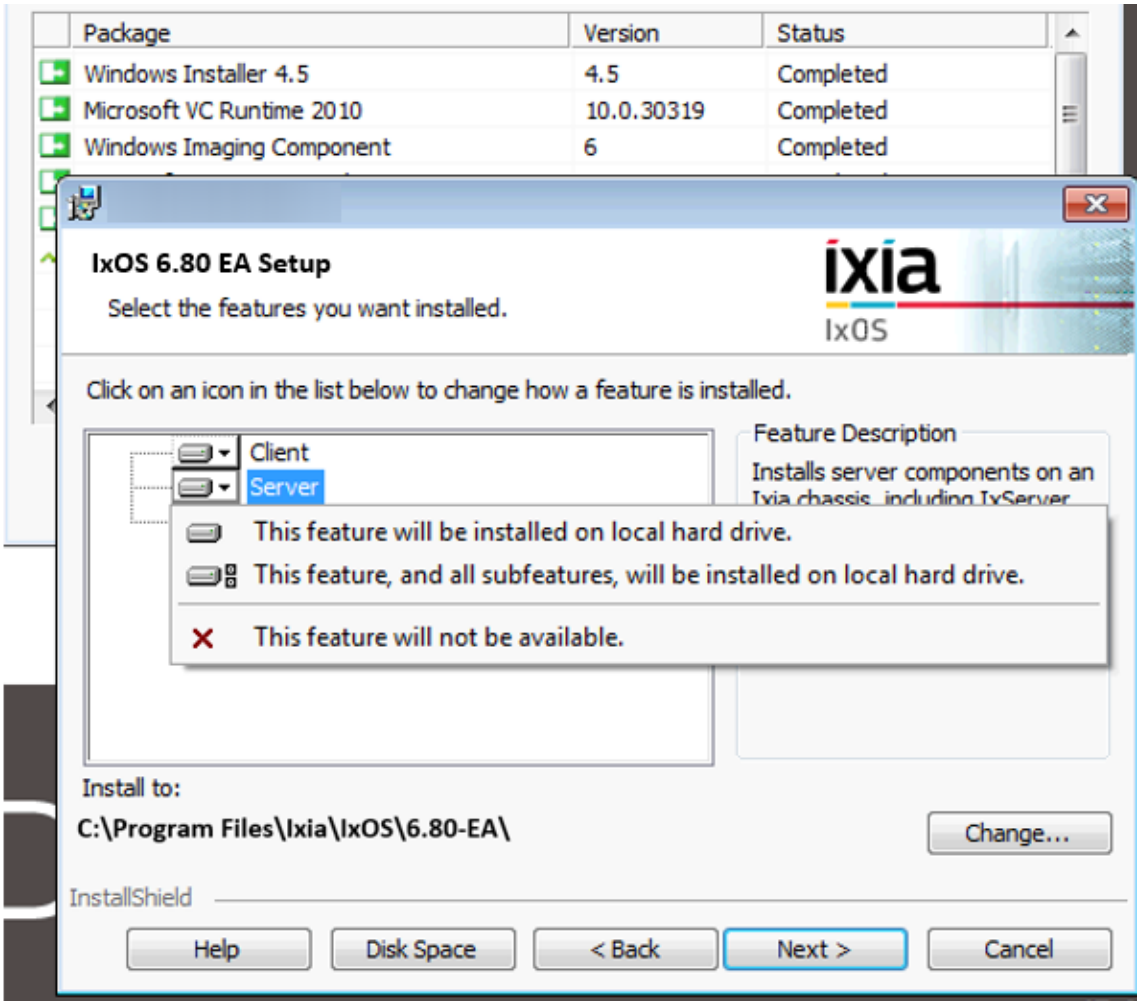
1. Open Remote Desktop and Login to the Ixia Windows VM.
2. Copy the IxOS executable to the Desktop.
    a. You may need to copy the *.exe file onto the Ixia Windows VM.
    b. The file can be directly downloaded on the VM using the link above.
    c. If no direct network access to ixiacom exists, then a shared file system with the Ixia Windows VM is needed to gain access to the VM.
3. Stop IxExplorer and IxServer.
    a. Use a graceful shutdown, File -> Exit
4. Run *.exe.



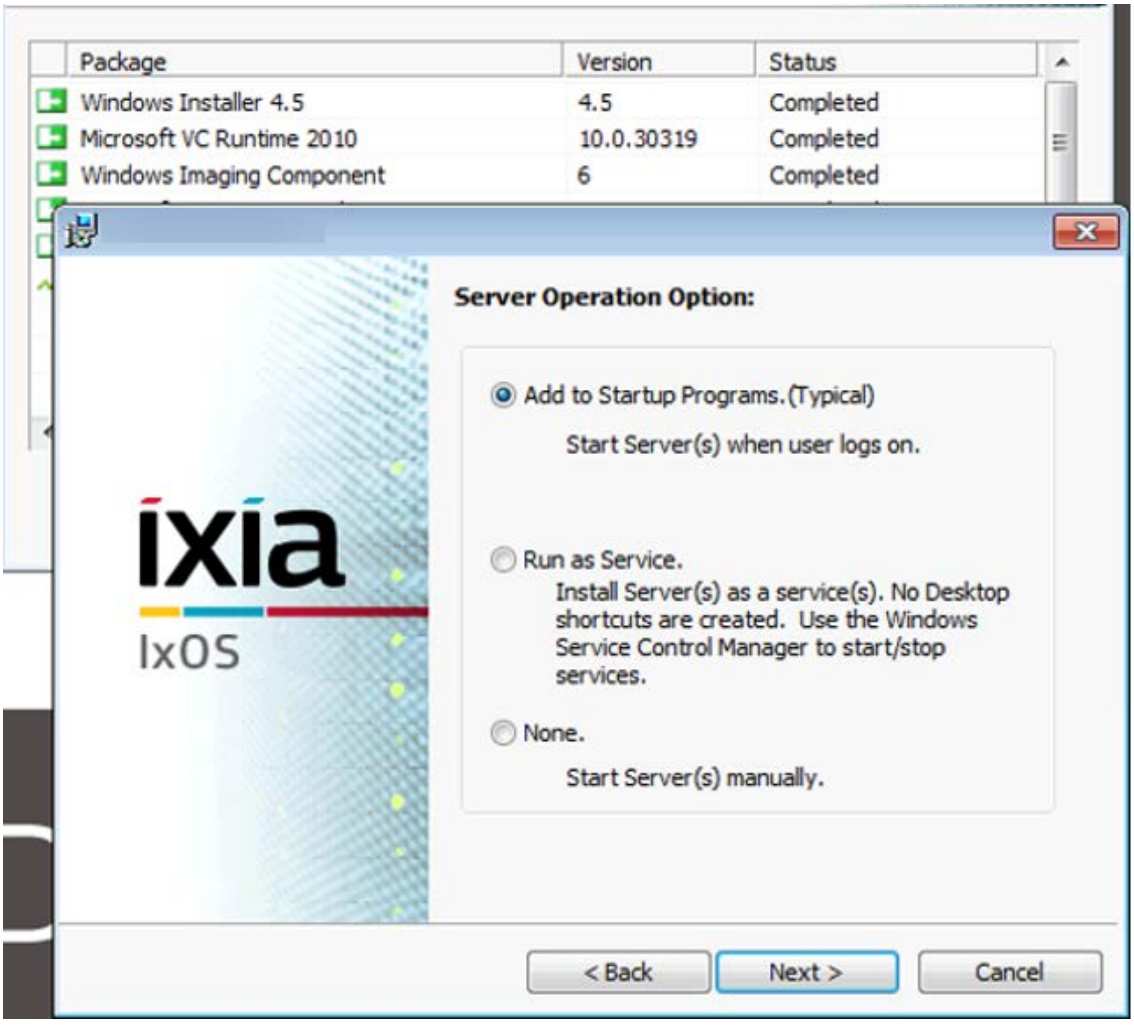
5. Click the **Run** button.



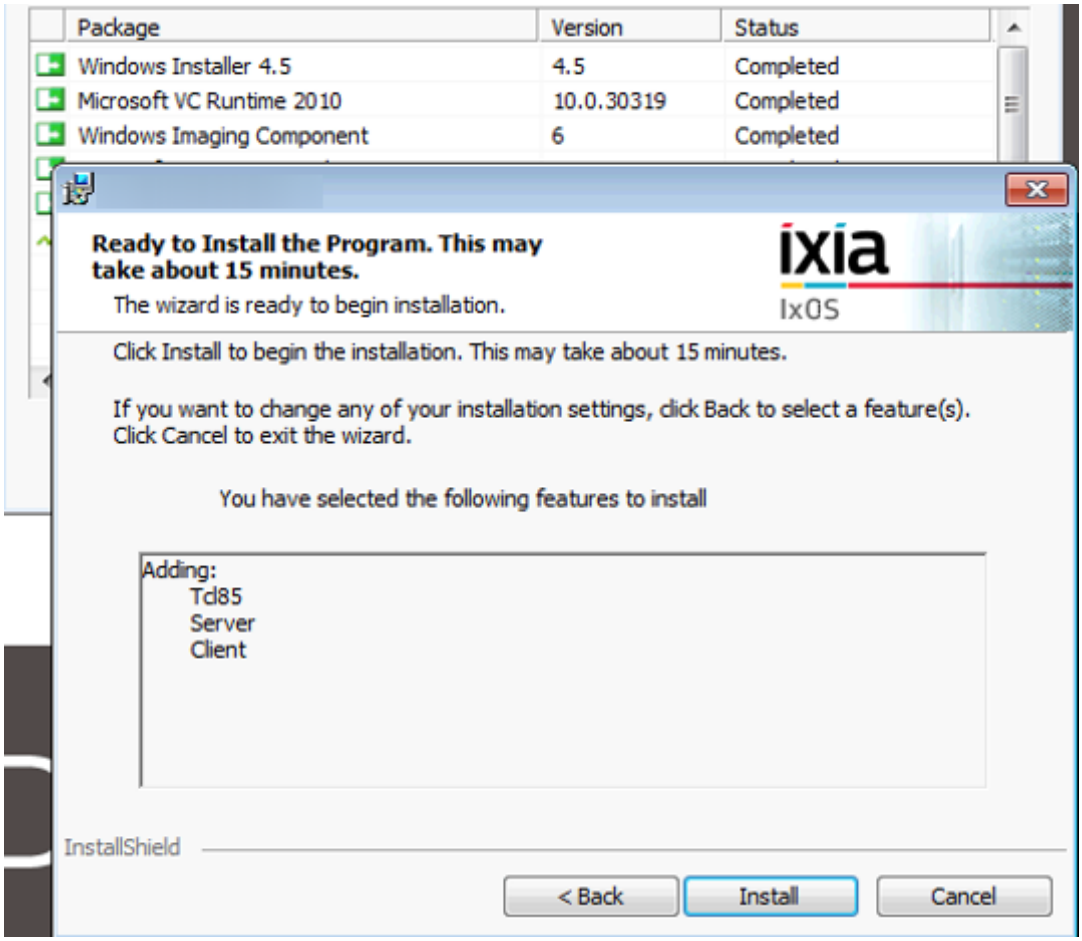
6. Accept the Default Destination Folder for the Installation. Click **Next**.



7. Set Client and Server to install and "**This feature, and all sub features, will be installed on local hard drive**", then click **Next**.
    a. Note: TCL server install is optional.

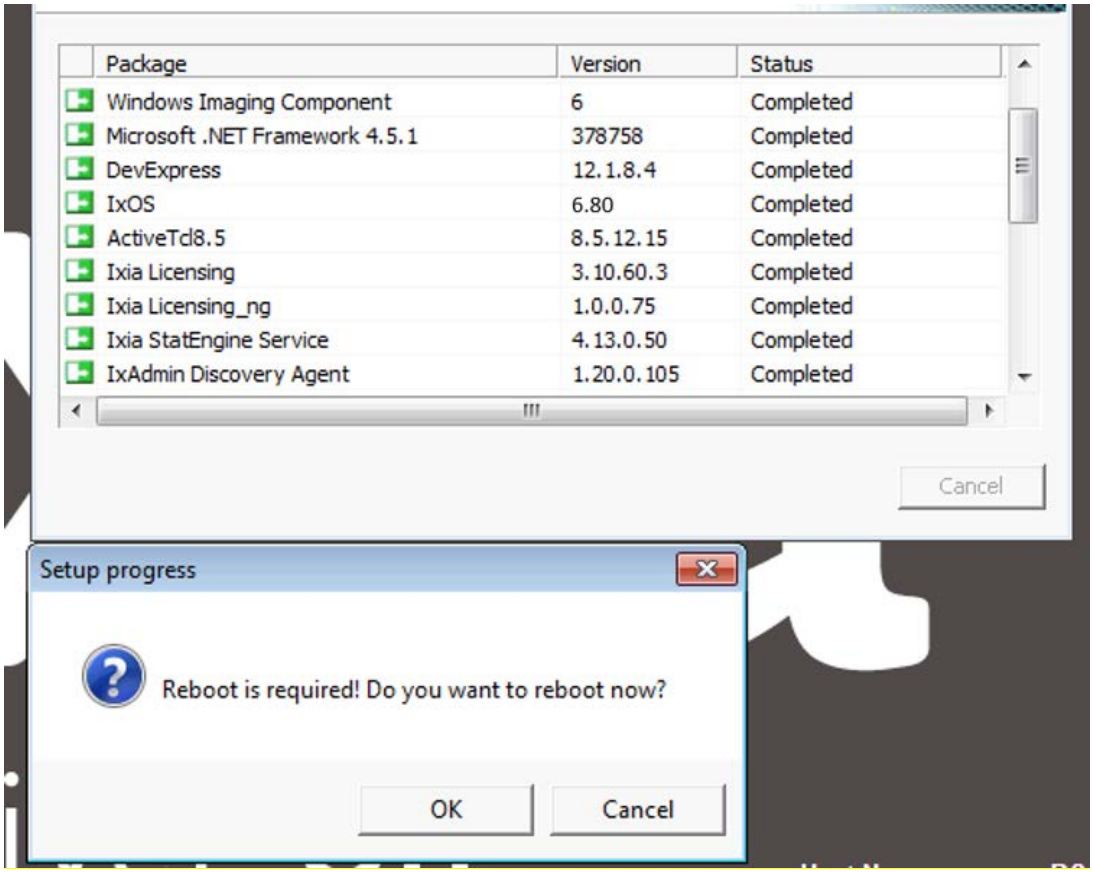


8. Select the following option: "**Add to Startup Programs.(Typical)",** then click **Next**.



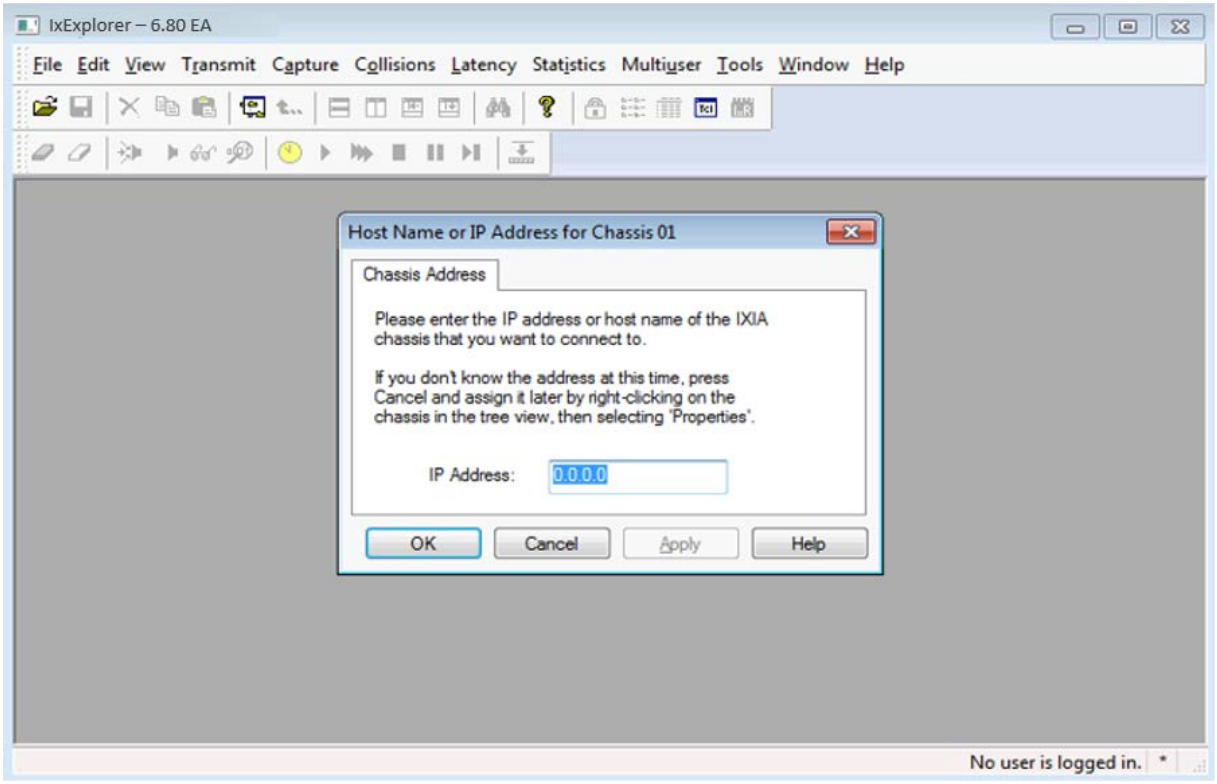
9. After some essential components complete installation, the IxOS server will be ready to install, click **Install**.

10. After several minutes of installation, new IxOS application links will be copied to the desktop.



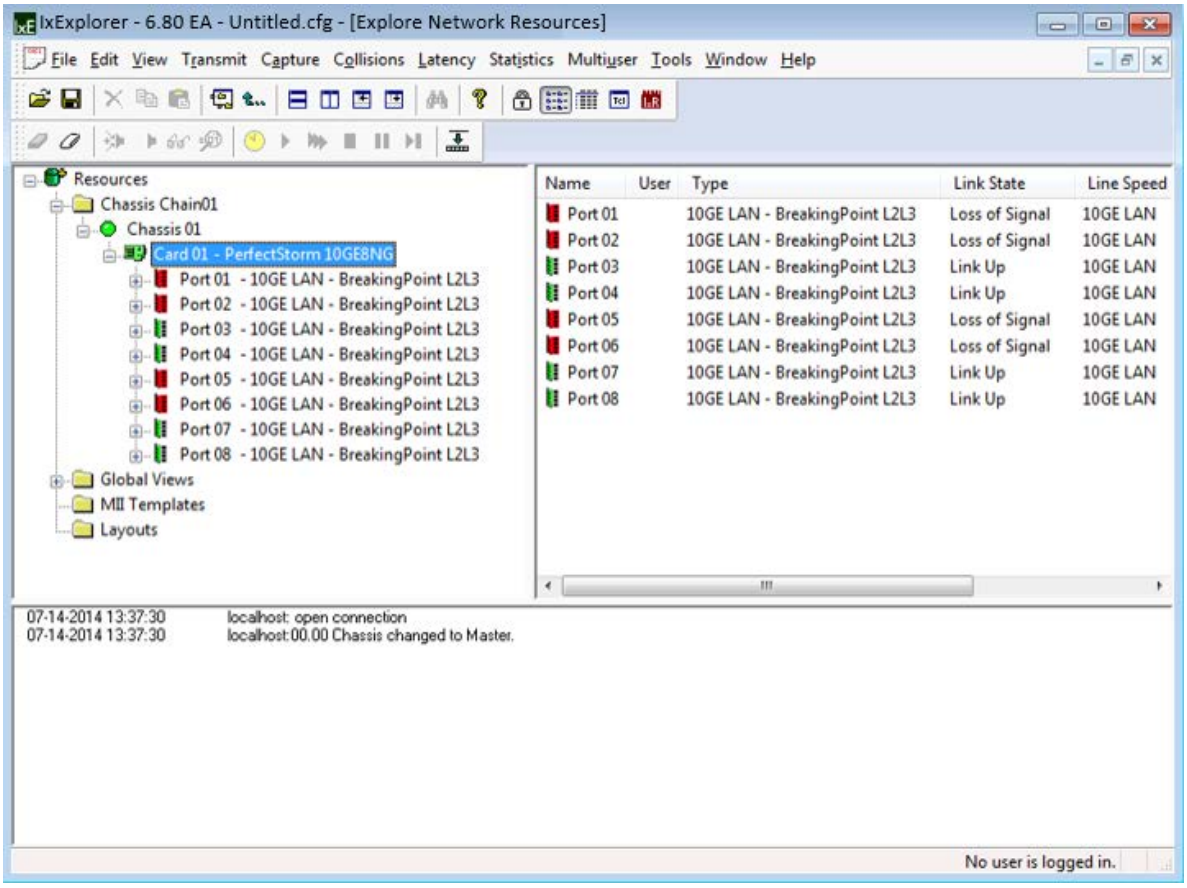
11. The system will ask the user to reboot the Windows VM.
12. After the Windows VM reboots IxServer will start automatically and will continue setting up the system hardware.

    a. Note: Starting IxServer the first time after installation will be slower and may take more than **10 minutes** for each slot to be prepared to run with the new IxOS version.



13. Then open IxExplorer and make sure that it is the same version as IxServer.
    a. In the **IP Address** field, type: **`localhost`**
    b. **Click OK.**

    Saving the configuration for a later time is optional, we selected **No** for this example.



14. IxExplorer will show the status of the blades connected to the chassis along with the mode they are running in.

    a. Seeing a green status indicator for Chassis indicates the blade is communicating with IxServer.
    b. Green Ports indicate Link Up status.
    c. Red Ports indicate Link Down status.

Upgrading the BreakingPoint Version

Note: There are 3 different types of BPS update file. Use the appropriate update file for your BreakingPoint system.

- Update_lxc.x.x.bps should be used for PerfectStorm running in a Native IxOS system
- Update_vm.x.x.bps should be used for BPS VE
- Update.x.x.bps should be used for PerfectStorm running on Windows IxOS and for legacy Firestorm/Storm systems

To update the Ixia BreakingPoint System:

1. Download the required BPS update file.
2. Log in to the Ixia BreakingPoint System.
3. Navigate to **ADMINISTRATION -> SYSTEM SETTINGS -> UPDATES**.
4. Select **UPDATE SYSTEM** (see **figure 1** below).
5. Browse to the location of the BreakingPoint update file and select **OK**.

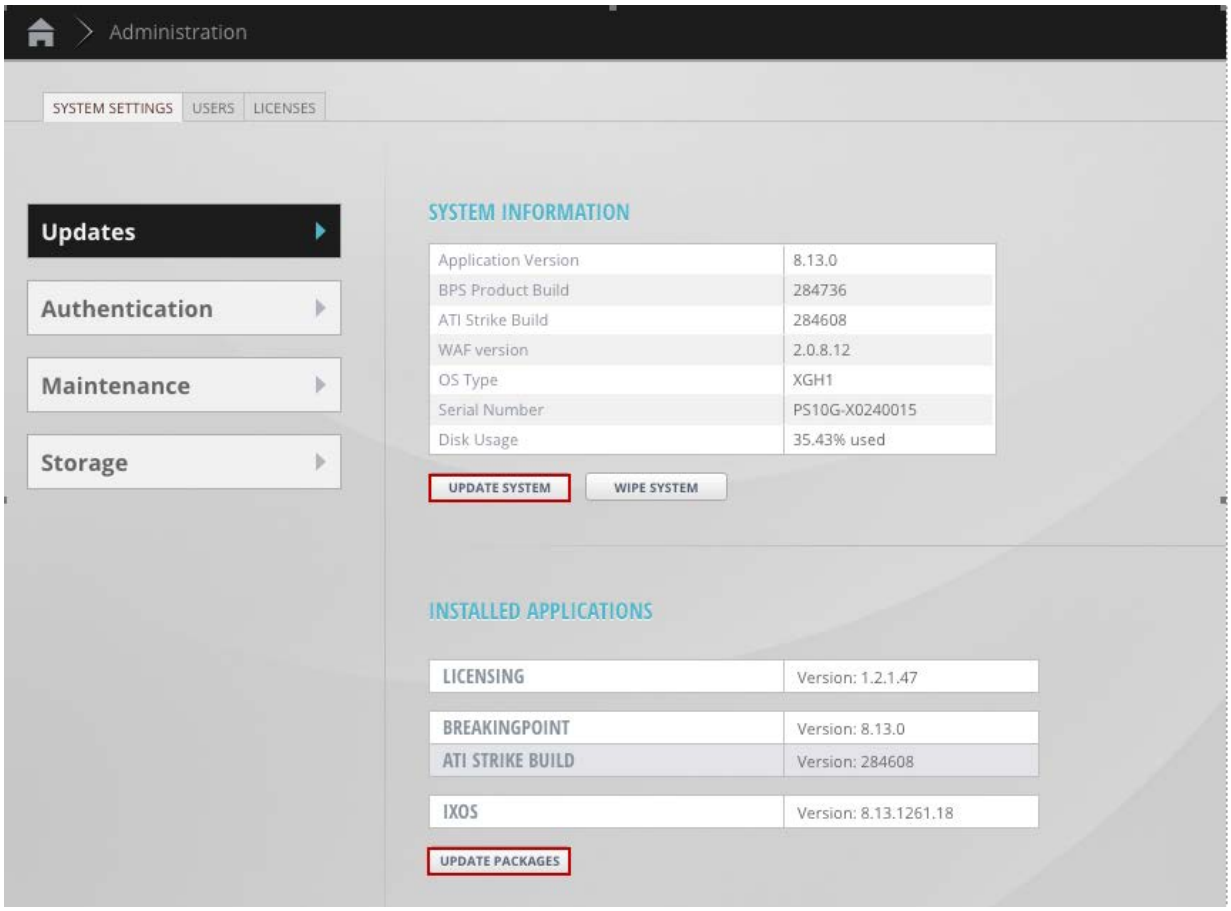
6. The BreakingPoint update will take 30-45 minutes to complete.

Update Packages

The Application and Threat Intelligence (ATI) program provides updates every 2 weeks ensuring delivery of the industry's most up to date application and threat intelligence.

1. We recommend that customers install the latest ATI update since some BreakingPoint issues are resolved by installing ATI updates (see **Update Packages** in **figure 1** below). ATI Update Packages are available at: https://support.ixiacom.com/support-overview/product-support/downloads-updates > **BreakingPoint Software**.

Figure 1: Ixia WEB APPS Start Page



Switching to BreakingPoint Mode

All PerfectStorm Fusion load modules (blades) are capable of operating in IxLoad or BreakingPoint mode. When booting up, all PerfectStorm Fusion load modules default to IxLoad mode.

Note: Load modules retain the mode they were in prior to being rebooted.

On PerfectStorm (XGS12-HS), a red square in the upper right corner of the load module on the Device Status screen indicates that the module is in IxLoad mode. A green square indicates that the module is in BreakingPoint mode. On PerfectStorm ONE, the text “IxLoad Mode” at the bottom left side of the chassis on the Device Status screen indicates that the unit is in IxLoad mode. The text “Settings” indicates that the PerfectStorm ONE unit is in BreakingPoint mode.

To Transition from IxLoad Mode to BreakingPoint Mode:

1. Click a port on the load module to begin the transition process. The **Reboot Slot** window will display.
2. Change the Slot Option setting to **Mode**. Select **BreakingPoint Mode** or **BreakingPoint L2/L3 Mode**.
3. Click **Apply** and wait for the mode change to complete.

Note: The transition from IxLoad mode to BreakingPoint mode takes approximately three minutes for each load module.

Note: To transition multiple load modules to BreakingPoint mode on PerfectStorm, each load module must be allowed to completely transition before the mode change process for the next load module can begin. Transitioning multiple modules simultaneously is prohibited.

Resolved Defects

The following table lists defects from previous releases that have been resolved. If you have any concerns or questions regarding the defects listed here, please contact the BreakingPoint support team at support@ixiacom.com or call them at 1-818 595-2599.

Reference #	Description
736537	Resolved the issue where BPS clients would wait for DHCPv6 (stateful) prefix information, even though prefix information is not mandatory in the relay agent (per RFC4861).
736758	For GTPv2 (IPv6), Ixia resolved the issue that occurred when QCI was set to “5” (under Bearer QoS) and MBR and GBR were not automatically set to “0”.
749244	Resolved the issue where GTPv2 inner IP header checksum was zero on the captured packet.
744002	Resolved the issue on PerfectStorm where test reports displayed incorrect Ingress Frame Timestamp values.
747033	Resolved the issue where tests required a long time to clear GTP sessions and stop after the user had clicked the **Force Stop** button.

Known Issues and Defects

The following section details the known issues and defects of Firmware Release 8.20 GA. Workarounds are listed for each defect if they are available. If you have any concerns or questions regarding the defects listed here, please contact the BreakingPoint support team at support@ixiacom.com or call them at 1-818-595-2599.

Multiple Platforms

Reference #	Description
BUG1429555	For 100G PerfectStorm, the BitBlaster component allows the data rate to be set to a value greater than 10Gbps. Ixia recommends running BitBlaster at 10Gbps which is the default configuration for the BitBlaster component on all PerfectStorm blades.
BUG1427890	In this release, on PerfectStorm 100G, a single Bit Blaster component will not scale to more than 10 Gbps. To achieve 80 Gbps uni-directional and 160 Gbps bi-directional bandwidth, the user will need to create 8 components. Note that this issue does not apply to CloudStorm blades.
BUG1409347	On Native IxOS only, the Restart System feature now restarts the entire system instead of rebooting only the BPS system.
BUG1409592	On BPS VE, multicast traffic is not supported with SR-IOV.
BUG1422009	Running a large number of Security components (approximately 6) for a long duration may result in the UI freezing for the duration of the test.
BUG1422178	The IxOS CLI command used to gather system diagnostics (collect-logs) does not include the user interface activity (WAF) logs. Workaround: Run collect-logs from the CLI and **Gear** > **Help** > **System Diagnostics** from the BPS UI to obtain all diagnostic logs.
BUG1424658	With Proxy mode ON, all successful application transactions may not be reported for SuperFlows which include Close actions with the Transaction Flag set to End on the server side. Workaround: To work around this issue, set the Transaction Flag to End on the (last) response node instead of the Close node.
BUG1425374	Selecting **Test** > **Open Test** while in Network Neighborhood displays a list of tests that is empty. Workaround: To work around this issue, select **Test** > **Open Test** again and the list of saved tests will display.

BUG1425583	In a test that repeats strikes for several iterations, Real Time Statistics can display a test result with a Completed Strikes value which is greater than the number of strikes configured for the test. Workaround: To work around this issue, divide the Completed Strikes value by strike iteration count.
BUG145209	A vulnerability scan on the BPS VE System Controller may cause the system to be inaccessible from the web browser although no high severity vulnerability is present in the system. Workaround: The workaround is to redeploy a new BPS-VE controller system.
BUG1426286	When running strikes the Enhanced Shell reports a different number of RX Frames and TX Frames than WEB UI.
BUG1426784	When a Native IxOS system is being upgraded using Tcl, the status may simultaneously indicate that update is “in progress” and 100% complete. In this scenario the “in progress” status can be ignored.

CloudStorm Platform

Reference #	Description
BUG1429185	When creating new Routing Robot/Bit Blaster tests on the CloudStorm blade, avoid using the system-supplied templates for the tests. Instead, start with the default settings for newly created tests and modify them as necessary. Tests that utilize the system-supplied templates will not pass validation if the rates, duration, and frame size are not identical in the test components.
BUG1420205	On CloudStorm, the maximum Routing Robot/ BitBlaster components supported are 4 when uni-directional (opposite way) and 2 when the bidirectional option is selected.
BUG1420383	On CloudStorm, the Bitblaster **Frame Size Distribution Weight** setting produces packet sequences that are approximate in size.
BUG1421453	On CloudStorm, the Stack Scrambler test component uses ICMP packets as a “diagnostic” mechanism. Since the diagnostic packet is using a single IP address, a combination of IPv4 and IPv6 ranges will generate incorrect results.
BUG1422408	The Delayed Start feature in Layer 2/3 on a CloudStorm blade has a +/- 10 second tolerance in this release.
BUG1423380	Four AppSim components are required to achieve the Max GTP UE attached rate on CloudStorm.
BUG1425332	On CloudStorm for a Security/Security NP test in combination with other components such as AppSim or Routing Robot, adding a new component and changing the tags might take an extended period

	of time to complete. The higher the number of components the longer the delay for the tag change.
BUG1427482	After restarting the chassis, some CloudStorm cards may not boot properly and a Flow Detective error will appear when trying to run Routing Robot or Bit Blaster components. Please hot swap the card to recover.

Operational Considerations

Reference #	Description
1309762	When PerfectStorm is in L2/L3 mode, only one network processor is available to generate application traffic. Therefore, maximum performance/throughput is expected to be lower for L4/L7 test components while L2/L3 tests will perform as expected.
1396164	On BPS VE, in a scenario where the configured throughput of a test exceeds the link speed, the licenses that are allocated (checked out) are based on the link speed that can be achieved on the NIC.
1398134	Note that GTP tunnel creation is not dependent on the number of sessions. BPS creates tunnels irrespective of session rate.
1399069	When running BPS VE on EXSi 5.5, L2/L3 components drop a large number of packets due to the vSwitch. Workaround: To work around this issue, use ESXi 6.0.
1399525	On BPS VE, the Security component should be shared with other test components in order for security packets to be successfully delivered.
1401796	When in “Performance Acceleration” (DPDK) mode, increasing available resources for BPS VE may not help to successfully deploy vBlades.
1401956	When a BPS VE host supports required CPU flags, you must select "Copy host CPU configuration" in the Virtual Machine Manager in order to deploy a vBlade.
1402051	Due to a queuing mechanism in “Performance Acceleration” (DPDK) mode, intermittently, response times may be slow if there are a large number of requests in queue. Tests that have a short duration may appear to stop without proper closure of sessions.
1409901	The files created for backups of native IxOS databases vary in size, and can take more than an hour to backup or to restore. The main component of their size is the number and size of test reports included in the database files. If you wish to reduce the time taken by the backup and restore functions, delete unneeded test reports prior to running the backup or restore.
1427345	The available disk space on the chassis after Native IxOS conversion becomes limited. Up to 70% of the HDD contains information for

	restoring the chassis to Windows mode (undoing the Native IxOS conversion). We recommended that you reclaim this disk space by deleting the legacy BPS information (use IxOS CLI command: uninstall bps legacy) before running a long duration scaled test.
1425901	CloudStorm hardware interprets the increment/decrement port settings in a slightly different manner than earlier BPS blades. In both cases the user sets the "starting port number" and the "mask size". For example, consider an incrementing case where the mask is set to eight bits; In CloudStorm, the port numbers generated will increment from "starting port + 0" to "starting port + 255". In blades other than CloudStorm, using the same settings, the eight least significant bits in the starting port will be replaced by an incrementing value of 0 to 255. It should be noted that if the user sets the "starting port number" such that the masked bits are zero, the resulting port # sequences generated by both sets of hardware will be identical. This is likely the most common configuration as the masked bits in the "starting port number" are essentially ignored by legacy hardware. The newer mechanism gives more flexible control over the port ranges.