



Observer Platform OS Upgrade

Windows Server 2016

1 Nov 2021



Notice

Every effort was made to ensure that the information in this manual was accurate at the time of printing. However, information is subject to change without notice, and VIAVI reserves the right to provide an addendum to this manual with information not available at the time that this manual was created.

Copyright

© Copyright 2021 VIAVI Solutions Inc. All rights reserved. VIAVI and the VIAVI logo are trademarks of VIAVI Solutions Inc. (“VIAVI”). All other trademarks and registered trademarks are the property of their respective owners. No part of this guide may be reproduced or transmitted, electronically or otherwise, without written permission of the publisher.

Copyright release

Reproduction and distribution of this guide is authorized for Government purposes only.

Terms and conditions

Specifications, terms, and conditions are subject to change without notice. The provision of hardware, services, and/or software are subject to VIAVI standard terms and conditions, available at www.viavisolutions.com/terms.

Specifications, terms, and conditions are subject to change without notice. All trademarks and registered trademarks are the property of their respective companies.

Federal Communications Commission (FCC) Notice

This product was tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This product generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this product in a residential area is likely to cause harmful interference, in which case you will be required to correct the interference at your own expense.

The authority to operate this product is conditioned by the requirements that no modifications be made to the equipment unless the changes or modifications are expressly approved by VIAVI.

Laser compliance

This device is a class 1 laser product.

Industry Canada Requirements

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

WEEE and Battery Directive Compliance

VIAVI has established processes in compliance with the Waste Electrical and Electronic Equipment (WEEE) Directive, 2002/96/EC, and the Battery Directive, 2006/66/EC.

This product, and the batteries used to power the product, should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations. In the European Union, all equipment and batteries purchased from VIAVI after 2005-08-13 can be returned for disposal at the end of its useful life. VIAVI will ensure that all waste equipment and batteries returned are reused, recycled, or disposed of in an environmentally friendly manner, and in compliance with all applicable national and international waste legislation.

It is the responsibility of the equipment owner to return equipment and batteries to VIAVI for appropriate disposal. If the equipment or battery was imported by a reseller whose name or logo is marked on the equipment or battery, then the owner should return the equipment or battery directly to the reseller.

Instructions for returning waste equipment and batteries to VIAVI can be found in the Environmental section of VIAVI web site at www.viavisolutions.com. If you have questions concerning disposal of your equipment or batteries, contact VIAVI WEEE Program Management team at WEEE.EMEA@viavisolutions.com.

Technical Support

North America	1.844.GO VIAVI / 1.844.468.4284
Latin America	+52 55 5543 6644
EMEA	+49 7121 862273
APAC	+1 512 201 6534
All Other Regions	viavisolutions.com/contacts
email	customer.care@viavisolutions.com

Support hours are 7:00 A.M to 7:00 P.M. (local time for each office).



Table of Contents

Chapter 1: Upgrading the Operating System.....	4
How to confirm system compatibility for operating system upgrade.....	4
How to upgrade the operating system.....	5
How to bring Data Volume disks online for Gen 3+ appliance and Gen 4 appliance.....	7
How to bring Data Volume disks online on a Gen 3 appliance.....	8
Backing up your GigaStor settings.....	9
Restoring your GigaStor settings.....	10
Backing up your GigaFlow settings.....	11
Restoring your GigaFlow settings.....	12
Backing up your Apex settings.....	12
Restoring your Apex settings.....	13
Technical Support.....	13
Index.....	14

Chapter 1: Upgrading the Operating System

How to confirm system compatibility for operating system upgrade

Checking the compatibility of your system before upgrading the operating system is an important part of the process. The **Preupgrade** program lets you know if your system meets the requirements.

Prerequisite(s):

System requirements for this operating system upgrade include:

- ◆ Current operating system must be Windows 2012 R2
- ◆ Current Observer Platform version must be 18.5.0.0
- ◆ Current motherboard and RAID controller(s) must be supported models

Before upgrading the operating system to Windows Server 2016 on your appliance, you must confirm that the system has a supported configuration. A utility to check that the minimum system requirements are met is included on the OS Upgrade USB drive you received. After running the utility, it produces a report that tells you if your system meets the necessary requirements.

1. Insert the OS Upgrade USB drive into the appliance you are upgrading.
2. In the OS Upgrade USB drive, proceed to **\Viavi-Installer** and locate `PreUpgrade.exe`, and run the utility.
3. Follow the prompts.

This process takes a couple of minutes to collect details about your system. A message box informs you the type of appliance (**Appliance Type**) used and if the system meets the requirements for an operating system upgrade.

Note: If you have purchased **Blu-ray disks**, you must select the appropriate **Disk Number** and **Image** based on the **Appliance Type** from the [Table 1 \(page 5\)](#).

The script opens a log file with the results of the system check. This is stored as a text file in the **\Viavi-Installer** folder.

Caution: If the utility informs you that an operating system upgrade is not supported on this appliance, **STOP**. You cannot continue. Do not apply the operating system upgrade. Email the log files stored in the **\Viavi-Installer** folder to [Technical Support](#) with the title "Windows Server 2016 Upgrade Logs."

Table 1. Image List

Appliance Type	Image	Disk Number (only for Blu-ray)
Portable 8T	Gen4_Portable_WS2016_202103_Mk1	Blu-ray Disk 2
Apex 80T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
Apex Enterprise	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaFlow 80T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor-M	Gen4_MP_WS2016_202103_Mk1	Blu-ray Disk 1
ObserverONE 192T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 4G 48T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 10G 96T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 20G 192T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 40G 384T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 60G 576T	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
GigaStor 60G 1P	Gen4-RAID-2016-Mk2	Blu-ray Disk 1
Anything Gen3+	Uni_WS2016_202108_Mk3	Blu-ray Disk 2
Anything Gen3	Uni_WS2016_202108_Mk3	Blu-ray Disk 2

If your system meets the requirements, continue with [How to upgrade the operating system \(page 5\)](#).

How to upgrade the operating system

The Windows® operating system upgrade utility loads Windows Server 2016 onto your Observer Platform appliance.

Prerequisite(s):

Caution: All settings, configuration data, and files on the operating system drive of the appliance will be deleted during the upgrade. This includes passwords, IP addresses, domain information, and so on. This also includes your encryption keys if you are using Data-at-Rest (DaR) encryption on a Gen 3 appliance. We highly recommend backing up the software configuration and data of the GigaStor before continuing. For instructions, see: [Backing up your GigaStor settings \(page 9\)](#), [Backing up your GigaFlow settings \(page 11\)](#) and [Backing up your Apex settings \(page 12\)](#)

These items are required for the upgrade process:

- ◆ OS Upgrade USB drive or Blu-ray Disk
- ◆ Physical access to the appliance (upgrade target)
- ◆ Monitor and keyboard connected to the appliance
- ◆ Windows license key provided with the OS Upgrade USB drive
- ◆ License information for your Observer Platform software.

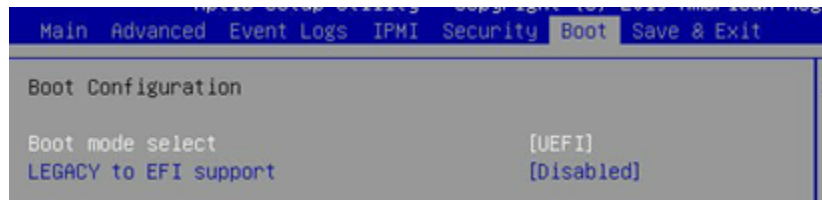
The entire upgrade process takes about 30 minutes to complete. Consider completing the upgrade during a routine maintenance window to minimize the impact on users. To upgrade the operating system of your appliance:

1. Confirm that the appliance you are going to upgrade is supported by the upgrade bundle included on the OS Upgrade USB drive.
See [How to confirm system compatibility for operating system upgrade \(page 4\)](#).
2. If the appliance is GigaStor, back up your existing software configuration and data.
For instructions, see [Backing up your GigaStor settings \(page 9\)](#).
3. If the appliance is GigaFlow, back up your existing software configuration and data.
For instructions, see [Backing up your GigaFlow settings \(page 11\)](#).
4. If the appliance is Apex, backup your existing software configuration and data.
For instructions, see [Backing up your Apex settings \(page 12\)](#).
5. If the appliance is Observer ONE, follow the back up procedure for GigaStor, GigaFlow and Apex.
6. Insert the OS Upgrade USB drive into the appliance (into the A1 chassis for GigaStor).
7. Restart Windows.
8. As the unit boots on POST, press **F11** to load the boot selection menu.
9. On the boot device list, select **UEFI: Samsung Flash Drive FIT 1100, Partition 1** to boot from the USB.

If the appliance starts from the OS Upgrade USB drive, a **Clonezilla Utility** dialog appears. This is desired.

If the USB drive does not appear in the list, the boot mode is set to **Legacy** in the **SETUP** program (BIOS). This happens mainly for Gen 3 and Gen 3+ appliances. In that case:

- Press **DEL** to go to the **Boot** option.
- Set the **Boot mode select** to **UEFI** or **DUAL**



10. When the **Clonezilla Utility** appears:
 - If you are using OS Upgrade USB drive, then select **Viavi Observer Upgrade USB** and press **Enter**
 - If you are using Blu-ray disks, then select **Viavi Observer Upgrade Blu-ray disks** and press **Enter**
11. . The system begins the upgrade operation. This process takes several minutes

Caution: The Clonezilla upgrade may fail due to insufficient RAID volume space. If this happens, contact [Technical Support \(page 13\)](#).

12. After Windows restarts, log in with these credentials.

Account: Administrator

Password: admin

These are the system defaults and may be changed by you.

The operating system upgrade is complete.

13. In the Windows desktop, select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.
14. Set the **IP address**, **Subnet mask**, **Default gateway**, and **DNS server** for your environment and click **OK**.
15. Click **OK** again to close the **Properties** dialog for that network connection.
16. To change the drive letter of the USB, select **Server Manager > File and Storage Services > Volumes > Disks**.
17. In the **Disks** list, click on **Samsung Flask drive FIT**.
18. In the **Volume** list, right-click **D:** and select **Manage drive letters and Access Paths**.
19. Change the drive letter to **Z:**
20. Bring the storage pool disks online. For instructions, see [How to bring Data Volume disks online for Gen 3+ appliance and Gen 4 appliance \(page 7\)](#) or [How to bring Data Volume disks online on a Gen 3 appliance \(page 8\)](#).
21. In the OS Upgrade USB drive, proceed to **\Viavi-Installer** and run **FieldUpgrade.bat**. This checks the drive letters occupied by the disk volumes, according to the type of the hardware. The **FieldUpgrade.bat** will report a failure if the drive letters are not properly allocated.
22. Select the product install. Options available are **GigaStor**, **Apex**, **GigaFlow** and **Observer ONE**.
23. When prompted, click **OK**. The system reboots and the Observer Platform application is installed based on your selection.
24. License the Windows operating system that has been installed on your appliance with the license that was included in your upgrade package.
25. License your Observer Platform application with the license that was saved during backup.
If you do not have your licensing information, please contact [Technical Support \(page 13\)](#).

The operating system upgrade is complete, and you can begin manually restoring your previous system settings. See [Restoring your GigaStor settings \(page 10\)](#), [Restoring your GigaFlow settings \(page 12\)](#) and [Restoring your Apex settings \(page 13\)](#).

In case they are needed, the upgrade process writes these log files to the OS Upgrade USB drive:

- ◆ Viavi_Pre_Upgrade.log

The installation process also writes these log files to the **C:\Viavi** drive

- ◆ InstallationLog.txt

Save these files. They will be useful for VIAVI Technical Support.

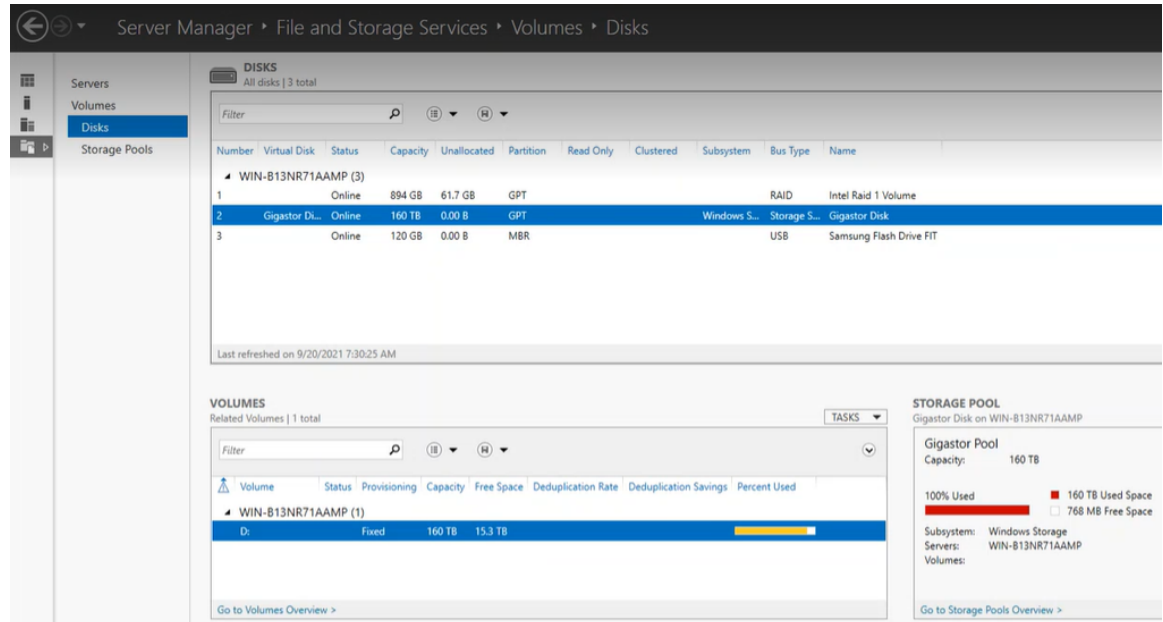
(Optional) To help VIAVI improve its upgrade utilities and processes, we request you email the log files noted above to [Technical Support](#) with the title "Windows Server 2016 Upgrade Logs."

How to bring Data Volume disks online for Gen 3+ appliance and Gen 4 appliance

To bring the disk online:

1. In the Windows desktop, proceed to **Server Manager > File and Storage Services > Volumes > Disks**

- In the **Disks** list, click on **GigaStor Disk** and select **Bring Online**.
- In the **Volume** list, right-click on **D:** and select **Manage drive letters and Access Paths**.



- Select the drive letter. All the disk volumes must occupy the drive letter D:, E:, F: and so on.

How to bring Data Volume disks online on a Gen 3 appliance

Note: Follow Steps 1-4 only if you are using Data-at-Rest (DaR) encryption. If not, please start from Step 5.

To bring the disk online:

- In the Windows desktop system tray, double-click the **ArcHTTP** manager icon. This will open the web browser.
- On the left side panel, expand the **SAS RAID Controllers** and click on all the **Web Management** items. Each item (corresponds to one RAID Controller) will open in a new browser tab.
- On each RAID Controller tab, log in with these default credentials.

Account: admin

Password: blank
- In the **Volume Set Functions** list, select **Download Volume Key File** and insert the appropriate key for the **Volume Set**. If successful, each volume set should appear as a disk drive in **Windows Device Manager** and **Disk Management**.
- Right-click the Windows Start button, select **Disk Management**.
- Right-click the **Foreign** disk and select **Import Foreign Disks**. An import dialog appears, click **OK**.
- An import dialog appears, click **OK**.
- Click **OK** to finish the import process.
- The disk activation is complete.
- Repeat this for all Foreign disks.

Note: Ensure that the drive letter assigned to the RAID volume is the same drive letter set in a folder for GigaStor and saving network packets to the disk.

Backing up your GigaStor settings

You can back up most GigaStor settings and configuration data. Backups are useful when migrating to new hardware, upgrading the operating system, or recovering from data loss.

Caution: If you are using Data-at-Rest (DaR) encryption on your Gen 3 GigaStor system, you must save the encryption keys before upgrading the operating system. Because the keys are typically stored on the operating system drive, they will be lost during the upgrade process. This must be a location other than the operating system drive of the system you are planning to upgrade and also not in the GigaStor, as the drives that contain the encrypted data will be offline. If you do not have a copy of the keys outside the appliance, you will not be able to access stored data (packets) after the upgrade is complete.

Your GigaStor *may not have each directory referenced in this topic*, but you can back up those that are present. Use whatever backup method is best for you.

Note: The Observer Reserved Memory setting in the Observer Memory and Security Configuration dialog (Reserved Memory tab) is specially tuned for your hardware at the factory. If you have changed it before applying this upgrade, it will be reset to the optimal value during the upgrade. This might affect the restoration of parts of the memory and security configuration.

To back up many GigaStor settings and files, do the following:

- ◆ Stop the following services:
 - observer.exe (Observer Analyzer)
 - ObsApexSvc.exe (ObsApexSvc service)
- ◆ Copy the files and directories in the [Table 2 \(page 9\)](#) to a backup location. This must be a location other than the operating system drive of the system you are planning to upgrade.

These are the default installation directories that contain GigaStor settings and configuration data:

- For 64-bit Windows: C:\Program Files\Observer

Table 2. Directory or files to back up

Directory or file	Description
Network Trending	C:\Program Files\Observer\NetworkTrending This contains your Network Trending data. If you have changed the default location for Network Trending data, you must back up the new location. Use the Folders tab in Options > General Options to verify which folder is used for trending data.
Protocol Definitions	C:\Program Files\Observer\ProtocolDefs This contains any modifications or additions you have made to the protocol definitions list for each probe instance. Back up in all cases.
Major Protocol Definitions	C:\Program Files\Observer\ProtocolDefs In the Server Application Discovery tab, select Tools > Export Current Application Definitions and select the Major protocol checkbox to export

Directory or file	Description
	the Major Protocol Definitions list. The Major Protocol Definitions list can be imported at the end using Tools > Import Application Definitions .
Multicast Definitions	C:\Program Files\Observer\MulticastDefinitions This contains the templates for defining trading multicast streams for Network Trending. Back up if you use trading multicasts in Network Trending.
Settings	C:\Program Files\Observer\Settings This contains alarms and triggers. Back up if you heavily use alarms or have alarm/trigger customizations that need to be retained.
SNORT Rules	C:\Program Files\Observer\Forensics This contains your SNORT information, such as rules, for detecting malicious activity in your packet captures. Back up if you use SNORT.
Expert Thresholds	C:\Program Files\Observer\ExpertSettings This contains your thresholds stored in Expert settings. These include TCP/UDP events and some triggers for problem identification. Back up if you have modified any Expert thresholds and want to retain those customizations.
SNMP	C:\Program Files\Observer\SNMP This contains any custom MIBs, compiled MIBs, request files and SNMP trending data. Back up if you have made SNMP changes or have SNMP trending data. Use the Folders tab in Options > General Options to verify which folder is used for SNMP.
Address Tables	C:\Program Files\Observer\LocalAddressTable This contains your Discover Network Names list. Back up if you have run Discover Network Names and have saved the alias list. C:\Program Files\Observer\ProbeAddressTable This contains the Discover Network Names list from any remote probe that has connected to this GigaStor analyzer. Back up if you have run remote Discover Network Names and saved the alias list.
Virtual Adapters	Take a screenshot of the virtual adapter details. In Observer, right-click the Gen3 capture card-equipped probe instance from the probe list, and click Probe or Device Properties > Virtual Adapters .
Scripts	C:\Program Files\Observer\Scripts This contains the scripts for GigaStor. Back up if you have created or modified a script.
Windows Registry	Using Regedit, export the following registry branch: HKEY_LOCAL_MACHINE\SOFTWARE\Network Instruments
License	Make note of the license information in Info > License Observer . You need the contact/department, company, identification number, and license number.

Restoring your GigaStor settings

You can restore the GigaStor settings and configuration data.

To restore the GigaStor settings and files, do the following:

1. License your Observer Platform applications.

If you do not have your licensing information, please contact [Technical Support \(page 13\)](#).

2. Restart the Observer Platform applications to ensure the license is applied to all the components.

3. Stop the Observer Platform applications.
4. Copy all the folders that you backed up to the Observer program folder (**C:\Program Files \Observer**).
5. Double-click the **.reg** file exported earlier from **Regedit** (Windows Registry) to restore all the settings.
6. Start the Observer Platform application, select **Tools > Import Application Definitions** to restore the major protocol definitions. All your previous settings are now replaced with the settings in the backup file.

Backing up your GigaFlow settings

You can back up most GigaFlow settings and configuration data.

To back up many GigaFlow settings and files, do the following:

1. Start **Windows Command Prompt** as **Administrator**.
2. Run **pg_dump** if you have added the PostgreSQL path to the Windows PATH Environment Variable.

```
"D:\Program Files\PostgreSQL\10\bin\pg_dump.exe" --
table=attributecategories --table=attributevalues_0 --
table=attributevalues_1 --table=attributevalues_2 --
table=attributevalues_3 --table=attributevalues_4 --
table=attributevalues_5 --table=attributevalues_6 --
table=blacklistslocal --table=blacklistslocalentries --
table=blacklistsources --table=customerdevicesettings --
table=customersettings --table=dataaccessgroupmembers
--table=dataaccessgroups --table=definedapplications
--table=deviceinterfaces --table=devices --
table=eventtriggers --table=eventtypes --table=flowobjects
--table=forensicsreports --table=geoips --table=gigastors
--table=integrations --table=interfacefilters --
table=interfacealertsettings --table=interfacetypes --
table=gigastores --table=ldapgroups --table=ldapusers
--table=ldapnestedgroups --table=multiservertargets --
table=networkaudits --table=pentypes --table=penvendors
--table=portalusers --table=portparams --
table=profilers --table=profilerstoallowedprofiles --
table=profilerstoentryprofiles --table=queryfielderservers
--table=reportlinks --table=reportnameoverrides
--table=savedreports --table=serverparams --
table=serversubnetport --table=serversubnets --
table=snmppollerclasses --table=snmppollerclassesforsysoid
--table=sqlreports --table=standardapplications
--table=stattypes --table=syslogprocessors --
table=syslogprocessorsdefault --table=trafficgroups --
table=trafficgroupsdeployed --table=trafficgroupsubnets
--table=eventrunners --table=eventrunners_versioned
--table=usergroups --table=userldapsettings --
table=userpermissions --table=users --table=whitelist -U
myipfix -f c:/temp/GigaFlowConfigBackup.sql
```

3. When prompted, enter the database password (**myipfix**). This will create the file **GigaFlowConfigBackup.sql** in the active directory. Move the **GigaFlowConfigBackup.sql**

to a backup location. This must be a location other than the operating system drive of the system you are planning to upgrade.

Restoring your GigaFlow settings

You can back up most GigaFlow settings and configuration data.

Caution: The following process will delete the existing database on the server.

To restore the GigaFlow settings and files, do the following:

1. Stop the **GigaFlow.exe** service.
2. Upload the required **GigaFlowConfigBackup.sql** file to the machine.
3. To delete the existing database and data:

```
psql --host=127.0.0.1 --username=myipfix -c "drop database myipfix" postgres
```
4. To create a new database:

```
psql --host=127.0.0.1 --username=myipfix -c "create database myipfix owner=myipfix" postgres
```
5. To restore the GigaFlow settings:

```
psql --host=127.0.0.1 --username=myipfix < ./GigaFlowConfigBackup.sql
```
6. When prompted, enter the database password (**myipfix**).
7. Restart GigaFlow. All the settings are now replaced with the settings in the backup file.

Backing up your Apex settings


To back up many Apex settings and files, do the following:

Copy the files and directories in to a backup location. This must be a location other than the operating system drive of the system you are planning to upgrade.

Table 3. Apex Directory or files to back up

Directory or file	Description
data	C:\Program Files\Observer Apex\NodeApp\ApexNode\data This contains the node data, not the Apex data.
Protocol Definitions	C:\Program Files\Observer Apex\ProtocolDefs This contains any modifications or additions you have made to the protocol definitions list for each probe instance.
reports	C:\Program Files\Observer Apex\reports This contains the widgets and dashboards.
System	C:\Program Files\Observer Apex\System This contains Apex settings.

To create a backup file:

1. In the Apex web interface, click **System > Backup & Restore**.
2. Click the new icon .
3. Click **Yes** to confirm the creation of the backup. The backup file is stored in the configured backup directory.


Note: Click the preferences icon  **Configuration backup location box** to find the backup directory location.

Restoring your Apex settings

You can restore the previously backed up Apex settings and configuration data.

Note: This process will log you out of Apex upon completion.

To restore the Apex settings and files, do the following:

1. Stop the **ObsApexSvc** Apex service.
2. Copy all the folders that you backed up to the Observer program folder (**C:\Program Files \Observer Apex**).
3. Start the **ObsApexSvc** Apex service.
4. In the Apex web interface, click **System > Backup & Restore**.
5. Select one by clicking a table row.
6. Click the reset icon .
7. Click **Yes** to confirm the restoration. All your previous settings are now replaced with the settings in the backup file. You can log in after the backup is restored.

Technical Support

Please contact technical support if your issues are not represented or you need further help.

North America	+1 800 526 7919
South America	+1 800 526 7919
EMEA	+44 1 959 569 880
APAC	+44 1 959 569 880
All Other Regions	viavisolutions.com/contacts
Email	nisupport@viavisolutions.com (North/South America) niuksupport@viavisolutions.com (EMEA/APAC)
Web page and documentation support	nipubs@viavisolutions.com (Please include the web link in your email)
Support hours are 7:00 A.M. to 7:00 P.M. CST/CDT (for North and South America) and 8:00 A.M. to 5:00 P.M GMT (EMEA and APAC).	

Index

A

address tables 9, 10, 11, 12, 12, 13

B

backups 9, 10, 11, 12, 12, 13

L

license 9, 10, 11, 12, 12, 13

M

multicast 9, 10, 11, 12, 12, 13

N

Network Trending 9, 10, 11, 12, 12, 13

O

operating system 4, 5, 7, 8

P

PreUpgrade.exe 4

probes

backing up 9, 10, 11, 12, 12, 13

R

recovery 4, 5, 7, 8

registry 9, 10, 11, 12, 12, 13

S

scripts 9, 10, 11, 12, 12, 13

SNMP 9, 10, 11, 12, 12, 13

SNORT 9, 10, 11, 12, 12, 13

support 13

T

troubleshooting 13

U

upgrade 4, 5, 7, 8

USB 4, 5, 7, 8

W

Windows

32-bit 9, 10, 11, 12, 12, 13

64-bit 9, 10, 11, 12, 12, 13

registry 9, 10, 11, 12, 12, 13

Windows Server 2012 R2 4